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From editor's desk...

Individually we achieve, together we excel...

Dear Readers,

Greetings.

The publication of an article begins when one or more people decide to write a manuscript with an aim to communicate their research work or opinion to the concerned research people all over the world. As far as the benefits to the authors are concerned, publication of articles provides recognition to the authors helps in improving their bio data and undoubtedly enhances their standing in the profession. The desire to publish also ensures that the authors keep themselves updated with the latest research in their respective fields. Dr SNMC Journal of Medical Sciences is committed to give chance to all researchers, academician and residents for putting their thoughts into words. This journal will provide a platform for prompt publication of new concepts and research that will contribute to the improvement of clinical work in medical field throughout the world.

The robustness of a research article in terms of its genuineness and methodology is indispensable for arriving at valid conclusions and application or implementation of the outcomes of research work. In order to ensure this, adherence to the International standards and guidelines of publication for different types of research articles is justified, as communication to our peers must be truthful and ethically correct. The editorial team would therefore endeavor to maintain the quality control of all material being published in the journal, so that journal may be achieve its zenith in the shortest possible time based on quality and originality of work undertaken and be recognized by the high quality of the articles published.

I, therefore request all the researchers to avail this opportunity to publish their research work and share it with research community all over the world. The success of a journal cannot be attributed to the works of the Editor-in-chief alone. The publication of journal is a team work which requires lot of cooperation, coordination and hard work of all the team members. I would therefore like to thank my Associate Editorial Team for their painstaking efforts and supporting me relentlessly in this endeavor to make this dream into a reality. I would also like to express my sincere thanks to the Editorial Board Members who have worked untiringly and helped the Editor and the journal, for recommending standard articles to be published in the journal.

I hope they will also help me with the same spirit and enthusiasm for the next issues and for making it a referred journal in times to come.

With kind regards

Dr. S. S. Rathore
Editor in chief
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Guidelines for Authors
ORIGINAL RESEARCH ARTICLE

MENSTRUAL PRACTICES IN ADOLESCENT GIRLS IN THE THAR DESERT

Desai Ranjana¹, Bhansali Suman², Jodha B S³, Anupama⁴

¹Professor, Department of Gynecology and Obstetrics, Dr. S. N. Medical College, Jodhpur, Rajasthan, India.
²Professor, Department of Community Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India.
³Professor, Department of Gynecology and Obstetrics, Dr. S. N. Medical College, Jodhpur, Rajasthan, India.
⁴IIIrd year Resident, Department of Gynecology and Obstetrics, Dr. S. N. Medical College, Jodhpur, Rajasthan, India.

INTRODUCTION

Adolescence is a period of transition from girlhood to womanhood. Menstruation is considered unclean in Indian society leading to isolation of girls in family and restricting them from certain day to day activities creating a negative attitude towards menstruation [1]. Due to various factors especially the lack of knowledge about this natural physiological event, several girls become psychologically distressed when they first experience it. Most adolescent girl had incomplete and inaccurate knowledge regarding menstrual physiology and hygiene and prevailing social mores make this subject taboo for public discussion [2]. This makes the transition from girlhood to womanhood traumatic for the adolescent girl.

Menstrual hygiene, is another important aspect of adolescence that is largely ignored. It deals with special health care needs and requirement of women during monthly menstrual cycle. Various type of infections due to lack of proper hygiene have been reported in various studies [2,3,4]. Good hygienic practices such as the use of sanitary pads and adequate washing of the genital area are essential during menstruation. A key priority for women and girls is to have the necessary knowledge, facilities and the cultural environment to manage menstruation hygienically and with dignity. An adolescent girl should be made aware of the phenomenon of menstruation at least a little ahead of its occurrence, so as to enable her to accept it as a normal developmental process and manage it appropriately.

This study was undertaken to primarily assess the KAP about menstruation in urban and rural settings in the Thar desert region of Rajasthan, India. The secondary aim was to find out what type of menstrual disorders experienced by adolescents.

AIMS AND OBJECTIVES

1. To assess the knowledge and the practices of menstrual hygiene among urban and rural adolescent girls.
2. To assess the restrictions which were practiced by adolescent during menstruation.
3. To find out menstrual disorders experienced by adolescent

MATERIAL AND METHODS

This questionnaire based study was conducted in 100 girls of adolescent age group who presented in the Outpatient department of our hospital for their health related problems. The data collection technique was a personal interview of the study subjects. A rapport was built up with the girls and verbal consent obtained. A questionnaire was designed with questions meant to evaluate the awareness about menstruation, source of information regarding menstruation, hygienic practices during menstruation, age of menarche. The menstrual hygiene questions included queries about type of absorbent which was used, and the use of napkins, and the method of disposal.

RESULTS AND DISCUSSION

The age of the 100 study subjects ranged from 12 to 19 years. The maximum numbers of study subjects were above 16 years of age [Table 1]. Among all these girls, 72 % were Hindus, and 28 % were Muslims. A majority of them [61 %] belonged to a rural background and 39 % resided in urban areas. The percentage of the girls who came from families living above the poverty line was 49 % and those living below the poverty line were 51 %. Table 2 shows the literacy level of the tested group and it was determined that 4 % of the adolescent girls were illiterate and 6 % had left school. The rest had had some school or college education.

Table 1 – Age Distribution

<table>
<thead>
<tr>
<th>Age in years</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>13</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>14</td>
<td>23</td>
<td>23%</td>
</tr>
<tr>
<td>15</td>
<td>9</td>
<td>9%</td>
</tr>
<tr>
<td>≥16</td>
<td>59</td>
<td>59%</td>
</tr>
</tbody>
</table>

Table 2 – Literacy status

<table>
<thead>
<tr>
<th>Education of girls</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>Left school</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>Middle</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Secondary school</td>
<td>21</td>
<td>21%</td>
</tr>
<tr>
<td>Higher secondary</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Undergraduates</td>
<td>19</td>
<td>19%</td>
</tr>
</tbody>
</table>
Table 3 – Age of Menarche

<table>
<thead>
<tr>
<th>Age of menarche (years)</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;11</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>12</td>
<td>22</td>
<td>22%</td>
</tr>
<tr>
<td>13</td>
<td>31</td>
<td>31%</td>
</tr>
<tr>
<td>14</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>≥15</td>
<td>15</td>
<td>15%</td>
</tr>
</tbody>
</table>

The mean age of menarche in the study population [table 3] was 13.5 years and the largest numbers were in the 13 years age group.

Table 4 – Prior knowledge about Menstruation

<table>
<thead>
<tr>
<th>Awareness about menstruation before menarche</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>47</td>
<td>47%</td>
</tr>
<tr>
<td>No</td>
<td>53</td>
<td>53%</td>
</tr>
</tbody>
</table>

Table 5 – Source of information about menstrual cycle

<table>
<thead>
<tr>
<th>Source of information</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>58</td>
<td>58%</td>
</tr>
<tr>
<td>Teacher</td>
<td>17</td>
<td>17%</td>
</tr>
<tr>
<td>Friend</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>Friend</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>5%</td>
</tr>
</tbody>
</table>

Table 4 shows the prior awareness of the adolescent subjects. A majority [53 %] of girls had never heard about menstruation before they first experienced it and 47 % knowledge about it prior to its onset. One of them thought that some boil gets rupture which causes bleeding. In the study, the mother was found to be the main source of information for 58 % girls followed by school teachers for 17 %, Relatives 17 % [table 5]. Many other studies have reported mother as the source of information [8].

Table 6 - Sanitary method used

<table>
<thead>
<tr>
<th>Sanitary protection used during menses</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary napkin</td>
<td>56</td>
<td>56%</td>
</tr>
<tr>
<td>Cloth</td>
<td>32</td>
<td>32%</td>
</tr>
<tr>
<td>Both cloth &amp; napkins</td>
<td>8</td>
<td>8%</td>
</tr>
</tbody>
</table>

Table 7 – Method of disposal

<table>
<thead>
<tr>
<th>Method of disposal</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throw into routine waste</td>
<td>53</td>
<td>53%</td>
</tr>
<tr>
<td>Wash and reuse</td>
<td>30</td>
<td>30%</td>
</tr>
<tr>
<td>Wash and dispose</td>
<td>17</td>
<td>17%</td>
</tr>
</tbody>
</table>
Table 8 - Restrictions followed during menstruation

<table>
<thead>
<tr>
<th>Restrictions followed during menstruation</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Related to prayers/ religious practices/namaz</td>
<td>98</td>
<td>98%</td>
</tr>
<tr>
<td>Touching or cooking food</td>
<td>48</td>
<td>48%</td>
</tr>
<tr>
<td>No restriction</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 9 - Gynaecological problems in adolescent girls

<table>
<thead>
<tr>
<th>Health related problems experienced by adolescent girls</th>
<th>No</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irregular cycles</td>
<td>50</td>
<td>50%</td>
</tr>
<tr>
<td>Pain abdomen</td>
<td>17</td>
<td>17%</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>Discharge/itching</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>Others</td>
<td>3</td>
<td>3%</td>
</tr>
</tbody>
</table>

In the present study 56% girls used readymade sanitary pads during menses while 32% girls used a cloth rag to stem the flow. A large number of girls [30%] used old cloth pieces and only 17% used new pieces of cloth each time. In urban girls, the use of sanitary pads was higher [49%] and in rural girls it was 16%. The use of old clothes was 18% in the rural girls and 48% in the urban girls. Despite the fact that Government of India has started a scheme for promoting menstrual hygiene amongst adolescent girls by providing adequate supply of sanitary napkins [6] most of the girls esp from rural area are not availing this facility and still resort to old methods of clothes which can be reused.

In this study 70% girls disposed of used sanitary materials and 30% girls reused the cloth after washing them. Das Gupta et al [5] reported that 73.75% girls reused cloth pieces and proper disposal of used material was seen in 57.5% girls.

98% girls had restrictions imposed due to different rituals in their communities like forbidden to enter the temple, kitchen or reading namaz. This practice was followed in their family by mothers and grandmothers due to false perception and stigmas associated with menstruation.

Irregular cycles were the most common complaint in the present study which affects their quality of life. 50% girls gave history of Irregular cycles. 17% girls present with complain of pain abdomen whereas Dysmenorrhea was seen only in 7% of girls1 of them present with complain of lump abdomen. On the contrary Dysmenorrhea was the common complaint in other studies [7].
CONCLUSION

It can be said that among the adolescent girls in both the urban and rural areas of the Thar Desert region, the knowledge on menstruation is poor and the practices are often not optimal for proper hygiene. Girls should be made aware of the phenomenon of menstruation at least a little ahead of its occurrence, so as to prepare them for the life changing event and enable them to accept it as a normal developmental physiological process and manage it appropriately by use of proper pads and its proper disposal. There is a need for improving access to sanitary pads. At the same time girl during menstruation is considered to be untouchable in various communities and this belief in society needs to be changed for betterment at social level.

REFERENCES:

ORIGINAL RESEARCH ARTICLE

ROLE OF BUCCAL LORAZEPAM IN DOMICILIARY/ OUT OF HOSPITAL MANAGEMENT OF SEIZURES

Gausai Dhanaram, Parakh Manish, Payal Vikas, Meena Harimohan, Singh Sumeet, Sharma Sonam

1 Junior Specialist, Government Hospital, Balotra, Barmer, Rajasthan, India.
2 Senior Professor and Consultant Paediatric Neurologist, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.
3 Assistant Professor, Department of Paediatrics, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.
4 Assistant Professor, Department of Paediatrics, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.
5 Junior Resident, Department of Paediatrics, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.
6 Junior Resident, Department of Paediatrics, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.

CORRESPONDENCE ADDRESS:

Dr. Manish Parakh
A-314, Shastri Nagar, Opposite Hanwant School, Jodhpur (Raj) India 342003
Residence Telephones: 0091-291-2614335, 2432134
Cell phone: 0091-9414127335
Email id: manparkh@hotmail.com

ABSTRACT

Background and Aims: A prospective follow-up to study the role of buccal lorazepam and intranasal midazolam in pre-hospital/domiciliary/ out of hospital management of seizure in children with epilepsy in Pediatric Neurology Clinic in an urban tertiary care teaching hospital.

Methods: A total of 94 children with epilepsy were included and followed up for a maximum of 24 months. All caregivers were counseled in domiciliary/ out of hospital management of seizures and instructed to use Buccal lorazepam (0.01 mg/kg/dose) or intranasal midazolam for a seizure a lasting more than five minutes/ >3 seizures within 30 minutes for seizures occurring in pre-hospital setting where trained medical personnel were not available. A detailed enquiry regarding occurrence of seizures and use of drugs to control the seizure was done every 6 months on follow up visits.

Results: 54 patients (57.5%) had one or more seizures in a an out of hospital setting. Attendants of 22 patients used buccal lorazepam for acute management of seizures in a pre-hospital setting and 17 (77.2%) reported immediate cessation of the seizure event.
Drowsiness (13.6%), irritability (9.1%), sedation (4.5%), vomiting (4.5%), confusion (4.5%) and frothing from mouth (4.5%) were commonly reported side effects and no serious adverse effects were seen in any patient.

**Conclusion:** Buccal lorazepam is a cheap and effective drug which can be safely used by parents and other non-medical caregivers for acute management of a seizure in an out of hospital setting. It must however be complemented with effective pre-hospital/domiciliary seizure management training which is recommended to be included in Basic Life support training skill courses.

**Key words:** Buccal, Lorazepam, domiciliary, Seizure

**INTRODUCTION:**

Epilepsy is characterized by recurrent unprovoked seizures presenting with episodes of sensory, motor or autonomic phenomenon with or without loss of consciousness. Despite advancements in pharmacologic and non-pharmacologic management of epilepsy, more than 33% of patients with epilepsy remain resistant and continue to have seizures during their lifetime[1]. Epileptic seizure, a common neurologic medical emergency is defined as a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in brain[2]. Recurrent seizures despite being on specific pharmacologic or non-pharmacologic management is associated with increased morbidity and mortality including chances of landing into status epilepticus in the affected individuals and also has an impact on the family and caregivers. One of the most dreaded issues in patients with epilepsy is a seizure outside hospital especially at home. In majority of rural India because of availability of few emergency room services, parents and caregivers have to transfer a convulsing child to nearest emergency room without proper transport facility which increases morbidity and mortality. Pre-hospital/Domiciliary management of a seizure with drugs that can be administered by parents and caregivers may be beneficial and can decrease morbidity and mortality associated with an out of the hospital seizure. Rectal diazepam, intranasal midazolam and recently buccal lorazepam are available in India for acute seizure management in an out of hospital setting.

Rectal diazepam is available as an enema and suppository and Midazolam is available is an intranasal preparation. Although effective, rectal route of administration of diazepam is culturally not very acceptable and the newer preparations are expensive. If not administered appropriately, the drug absorption and distribution is not optimal and render it ineffective. Intranasal midazolam is easier to administer during a seizure but is not distributed evenly and
absorption from nasal route may be more erratic due to the secretions accumulating in nose during a seizure. Buccal Lorazepam administered during a seizure have been a part of the acute seizure management protocol of many centres worldwide but is not used in India because of non-availability of a buccal preparation for this purpose. In the past two years, a cheap buccal preparation of Lorazepam is now available in India. The current study was designed with an objective to evaluate the role of buccal lorazepam in acute prehospital management of childhood seizures.

METHODS:

The present study was conducted in the Pediatric Neurology Clinic, Department of Pediatrics, Umaid hospital for Women and Children, Dr. S.N. Medical College, Jodhpur over a 12 month period. The study was approved by Ethical Committee of Medical College Jodhpur. All patients with childhood epilepsy (due to any aetiology) attending the Pediatric Neurology Clinic were enrolled in the study. Children below the age of 3 months, having a history suggestive of allergy or intolerance to benzodiazepines or having serious side effects requiring hospitalization were not included in the study.

The patients were worked up as per standard protocols and were prescribed specific anticonvulsants for management of the epileptic disorder. In addition, at least two of the family members accompanying the child were trained by the attending physician in pre-hospital/ domiciliary seizure management as mentioned in the parent/ caregiver instruction leaflet for Pre-hospital/ domiciliary management of seizure episode. A copy of the leaflet detailing the instructions in both English and Hindi (Figure 1) was given to the attendants and were instructed to share the information with other adult family members living with the child.

1. Parents have been taught in details about the rescue plan for out of hospital/ domicially seizure management as-

   a. Evacuation from accident zone, turning prone to prevent aspiration, use of intranasal midazolam or sublingual lorazepam and early transport ot the nearest emergency room.

   b. Lorazepam 1 mg MD (sublore 1mg) to be used sublingually as 1 tablet or midazolam 1.25 spray as 3 spray in each nostril for single seizure lasting >5 minutes or more than 3 seizures in 30 minutes. Can be repeated once if the seizure lasts more than 3 minutes.
मिर्गी के दौरे के समय

1. अपना संयम बनाये रखें।
2. अंडे के होते ही तुरंत आग पाम के क्रिया भी दूसरे ब्याधि को दुरा ले।
3. बड़े को आग, पानी या खतरे में दूर ले जाये।
4. एक बार ब्रांच पर सुना ले।
5. दौंड के बीच उंगली या चम्मच नहीं डाले।
6. अगर 5 मिनट में लम्बी तांड/दौंड हो तो टेबलेट सबलिंगुल आम और गर्म ठंडी अंदर ठंड के बाहर डाले बा मिडाजोलाम नेजल रे नाक में रख करे।
7. लम्बी तांड पर तुरंत निकलतम अस्पताल ले जाये।

Pediatric Neurology Clinic, Department of Pediatrics, Dr. S.N Medical College, Jodhpur

Parents: Caregiver instructions for Pre-hospital Domiciliary management during a seizure episode

1. Do not panic.
2. Do not insert anything (fingers or spoon) in mouth or in between the teeth.
3. Evacuate patient from potentially dangerous surroundings such as water, fire or in between traffic.
4. Turn patient to semi-prone position.
5. Administer Buccal Lorazepam tablet or Midazolam nasal spray in each nostril as instructed for more than 3 seizures in 30 minutes or a single seizure lasting more than 5 minutes.
6. Transport patient to nearest ER in case of longer or persistent seizures.

Attendants were instructed to use Lorazepam mouth dissolving tablet by placing between gum and lower lip in a dose as per the chart below (Table 1). Mouth dissolving Lorazepam is available in 1mg, 2 mg and 4 mg strength.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Dose to be given</th>
<th>Tablet to be given</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-7.5 kg</td>
<td>0.5 mg</td>
<td>½ tablet of 1mg preparation</td>
</tr>
<tr>
<td>7.5-12.5 kg</td>
<td>1 mg</td>
<td>½ tablet of 1mg preparation</td>
</tr>
<tr>
<td>12.5-17.5 kg</td>
<td>1.5 mg</td>
<td>1 ½ tablet of 1mg preparation</td>
</tr>
<tr>
<td>17.5kg-22.5kg</td>
<td>2mg</td>
<td>1 tablet of 2 mg preparation</td>
</tr>
<tr>
<td>22.5kg-27.5kg</td>
<td>2.5 mg</td>
<td>1 ½ tablet of 2mg preparation</td>
</tr>
<tr>
<td>27.5kg-32.5kg</td>
<td>3mg</td>
<td>1 tablet of 2mg preparation and 1</td>
</tr>
<tr>
<td>&gt;32.5 kg</td>
<td>4mg</td>
<td>tablet of 1mg preparation</td>
</tr>
</tbody>
</table>
Use of Midazolam nasal spray (as per doses schedule provided by the manufacturer) was demonstrated using a dummy spray bottle (Tablet 2). The use of either mouth dissolving lorazepam or Midazolam was to be done only if a seizure lasted more than approximately five minutes or more than three seizures in 30 minutes. Attendants were instructed that five minutes are only an approximate estimation and they did not need to use a clock/timer to use the same. In case the child had a seizure/cluster of seizures during the follow up period, Parents/Attendants/Caregivers were instructed to note down the following in a diary later on the same day:

1. Number of seizures during the follow up period
2. Whether the seizures occurred in a cluster or were isolated events. If clusters, then parents were instructed to note down the number of seizures in the cluster
3. Approximate duration of the seizure and whether Buccal Lorazepam or Midazolam spray was used to terminate the seizure
4. Approximate time when the seizure stopped after administering Buccal Lorazepam or Midazolam spray
5. Number of tablets of Buccal Lorazepam or Midazolam sprays used to terminate the seizure
6. All side effects and adverse events occurring in the next 48 hours

All the attendants were instructed to attend neurology clinic for regular follow up and those not coming for a regular follow up were contacted by phone and were persuaded to come for a regular follow up. All the patients in the study were followed up for a minimum of 6 months to a maximum of 24 months from their time of registration. On every follow up visit apart from the ongoing or new issues related to his/her illness, appropriate treatment compliance was also restressed and antiepileptic treatment reviewed and changed as indicated. A detailed history of the number of seizures that occurred since previous follow up, the total duration of a seizure or cluster of seizures and whether the attendants required mouth dissolving lorazepam or midazolam nasal spray for termination of seizure was recorded. In case no medication was used, the reasons for the same were also recorded. The approximate time taken for seizure termination and side effects reported by caregivers after the use of medication to abort seizures were recorded. In this study the end of the seizure episode (clinically) was defined as the cessation of visible epileptic phenomena or return of purposeful response to external stimuli for the aforementioned purpose and if the seizure did
not end within 10 minutes of drug administration, the treatment was deemed to be ineffective. The prehospital/domiciliary seizure management of the epileptic fit was re-stressed and re-taught on every follow up visit.

RESULTS:
A total of 165 patients diagnosed as Epilepsy (due to any etiology) attended Pediatric Neurology clinic in the one year study duration. Families of 94 of these children consented to participate in the study and were followed up for a maximum of 24 months. 58 (61.7%) were males and 36 (38.3%) were females and 49 (52.1%) had history suggestive of generalized seizures and 45 (47.9%) had focal seizures (Table I).

A follow up of 18 months was completed for 46.8% (44) patients, 12 months for 37.2% (35) patients, 6 months for 8.5% (8) patients and 24 months for 7.4% (7) patients. After registration in the Pediatric Neurology Clinic and starting appropriate anticonvulsant drugs, 42.5% (n=40) patients remained seizure free whereas 57.5% (n=54) patients had one or more seizures during the follow up (Table II). Out of 54 patients who had recurrence of seizure during their follow up, 26 patients had a seizure of more than five minutes and four patients had more than three seizures in 30 minutes. Amongst these 30 patients 22 (73.3%) patients were administered buccal lorazepam by their parents/caregivers/other attendants and in none of the patients intranasal midazolam was used.

Out of 22 patients in whom buccal lorazepam was used, seizures were aborted within a minute in 17 (77.2%) patients and no response was observed even after 10 minutes in remaining 5 (22.8%) patients. In 11 patients buccal lorazepam was used every time when there was recurrence of a seizure and nine (81.2%) of these patients had cessation of seizure every time buccal lorazepam was used (Table III). None of these patients landed in status epilepticus.

Drowsiness was reported in 13.6% (n=3) patients, Irritability (9.1%), vomiting (4.5%), confusion (4.5%) and frothing from mouth (4.5%) were other reported side effects. No serious adverse event was observed in any patients.

DISCUSSION:
Seizure, a common neurologic medical emergency, continues to be associated with significant morbidity and mortality in the pediatric age group and affects 4-7% of children[3]. Early domiciliary/prehospital treatment of seizures in the community, school, or home with drugs that can be administered by parents, teachers, nonmedical personnel and even
paramedics may be beneficial and can decrease morbidity and mortality.[4] In planning domiciliary therapy, the safety, ease of administration, choice of drug, route of therapy, and the practicability of familiarization by the user are important issues. Various drugs administered through different routes have been tried in the management of acute seizures.

In a hospital setup, intravenous diazepam, midazolam or lorazepam is commonly used for control of acute seizures, but it requires prompt establishment of an intravenous line and has the disadvantage of being a respiratory depressant.[5]

Rectal diazepam has been used successfully for pre-hospital and in-hospital treatment of acute seizures.[6] However, its use may be socially embarrassing and undesirable. It also requires special equipment and arrangement to administer it, which is difficult to be arranged in pre-hospital setting like homes, schools and day care centers. It is not always reliable owing to its variable bioavailability and wide range of serum concentration.[7,8] There is also a risk of child abuse.

Midazolam, a benzodiazepine, has been described as an alternative rescue medication in the management of acute seizures.[9,10] Recent studies have demonstrated intranasal midazolam to be effective in the management of acute childhood seizures as it was found to end seizures within 1 to 2 minutes of intranasal administration. [11,12] However the absorption from nasal route may be erratic and unreliable; also higher cost limits its use in poor community in developing countries.

Episodes of acute seizures have also been treated with buccal diazepam and buccal/sublingual lorazepam.[13,14] Sublingual/buccal lorazepam is cheap and easy to administer. Lorazepam is a high-potency short-to-intermediate-acting 3-hydroxy benzodiazepine drug which has all five intrinsic benzodiazepine effects; anxiolytic, amnesic, sedative/hypnotic, anticonvulsant and muscle relaxant.[15,16] Lorazepam is used for the short-term treatment of anxiety, insomnia, acute seizures including status epilepticus and sedation of hospitalized patients, as well as sedation of aggressive patients.[17]

Lorazepam (buccal/sublingual) is particularly useful for acute management of seizures because it is a fast-acting medication, used easily in hospital and domiciliary setting but swallowing it before its full dissolution reduces its effectiveness. It is a part of pre-hospital and in-hospital management protocols in almost all hospitals in the western hemisphere. In India, however it is not commonly used because of unavailability of a buccal preparation until recently. Besides, most of the discharge instructions and outpatient clinic prescriptions for epilepsy patients hardly ever mention, educate and stress pre-hospital/ out of hospital
management of acute seizures that can be given by parents and caregivers. Appropriate pre-
hospital management of acute seizures is known to reduce morbidity and mortality in patients
with epilepsy.

The current study was done to evaluate the role of buccal lorazepam in acute pre-hospital
management of seizure in children with epilepsy. In our study after registration in Pediatric
Neurology Clinic and starting appropriate anticonvulsant drugs 42.5% (n=40) patients
remained seizure free whereas 57.5% (n=54) patients had seizures on one or more occasions
(Table II). Recurrence of a seizure even when the patient was regularly receiving
anticonvulsant was more in patients with generalized seizures (68.6%) than in partial seizures
(54.3%). There seems to be a general consensus that both adults and children with newly
diagnosed epilepsy have only a 65–75% chance of entering long-term remission.[18,20]

Amongst the patients who had seizures in an out of hospital setting, 73.3% (22) were
administered buccal lorazepam by their caregivers/attendants while intranasal midazolam was
not used in any of them. In 8 (26.7%) patients none of the drugs were used for acute seizure
management in an out of hospital setting. Parents of 6 (75%) of these patients mentioned that
they were reluctant to use either buccal lorazepam or intranasal midazolam as a part of the
pre-hospital/domiciliary seizure management despite detailing the same in the clinic or at
discharge due to apprehension of doing something wrong. They also mentioned that they did
not remember and recall instructions given to them regarding management of seizure. In fact
these were also the parents who did not follow instructions for evacuating the patient to a
safer area and also proper positioning during a seizure. All these patients were however
immediately taken to the nearest emergency room (Primary health centre, Subcenter or a
Private hospital). None of these parents took the patient to a traditional faith healer. Parents
of two patients mentioned that they were not properly counselled. Parents/ Caregivers of 18
patients mentioned that they did not buy intranasal midazolam because it was costly.

In the current study mouth dissolving lorazepam was used in 22 patients and seizures were
aborted within a minute of its use in 77.2% of them and no response was observed in
remaining 22.8% patients (Table III). Mouth dissolving lorazepam was used for every
recurrence of seizure in eleven patients and 81.2% of these patients reported cessation of
seizure every time buccal lorazepam was used. None of these patients landed in status
epilepticus. Drowsiness was reported in 13.6% (n=3) patients. Irritability (9.1%), vomiting
(4.5%), confusion (4.5%) and frothing from mouth (4.5%) were other reported side effects.
No serious adverse effect was observed in any patients. These results are comparable to
another study done by Yager and Seshia\textsuperscript{16} who have studied the efficacy of sublingual lorazepam for serial seizures in ten children using initial dose of 0.05mg/kg and reported good response in eight children (80%) while partial response was observed in the remaining two patients and none of the patients landed in status epileptics. Side effects were minimal and included drowsiness, unsteadiness and nausea for up to one day.

The study concludes that buccal lorazepam is a cheap, safe and convenient to use option to abort a seizure in a setting where emergency medical services and prompt transportation to emergency room is not feasible or available as is the case in many suburban and rural areas of India and other developing countries. It must however be complemented with effective pre-hospital/domiciliary seizure management training. Based on the aforementioned study we also wish to make recommendations to include a pre-hospital/Emergency room/ domiciliary seizure management protocol in Basic life support skill training.

**KEY MESSAGE:**

What is already known: Effective management of seizures in an out of hospital setting can reduce morbidity and mortality in epilepsy patients.

What this study adds: Buccal lorazepam is a cheap, safe and convenient to use option for out of hospital management of seizures. Effective pre-hospital/domiciliary management of acute seizure by parents/caregivers reduces morbidity and chances of landing into subsequent status epileptics. Pre-hospital/domiciliary acute seizure management training should be included in Basic Life support skill training.

<table>
<thead>
<tr>
<th></th>
<th>Male (n=58) n, %</th>
<th>Female (n=36) n, %</th>
<th>Total (n=94) n, %</th>
<th>x², p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalized</td>
<td>32 (55.2%)</td>
<td>17 (47.2%)</td>
<td>49 (52.1%)</td>
<td>0.56, 0.45</td>
</tr>
<tr>
<td>Partial</td>
<td>26 (44.8%)</td>
<td>19 (52.8%)</td>
<td>45 (47.9%)</td>
<td></td>
</tr>
<tr>
<td>Specific syndromes</td>
<td>17 (29.3%)</td>
<td>9 (25.0%)</td>
<td>26 (27.6%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Classification of Seizures (electro-clinical)
Table 2: EPILEPSY PATIENTS WHO DEVELOPED SEIZURES AFTER REGISTRATION IN PEDIATRIC NEUROLOGY CLINIC

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
<th>Total</th>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GE</td>
<td>PE</td>
<td>Total n=58</td>
<td>GE</td>
<td>PE</td>
<td>Total n=36</td>
<td>GE</td>
<td>PE</td>
<td>Total n=94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5 minutes duration</td>
<td>12</td>
<td>6</td>
<td>18</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>18</td>
<td>10</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>37.4%</td>
<td>23.1%</td>
<td>31.0%</td>
<td>35.3%</td>
<td>21.1%</td>
<td>27.8%</td>
<td>36.7%</td>
<td>22.2%</td>
<td>29.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;5 minutes duration</td>
<td>10</td>
<td>8</td>
<td>18</td>
<td>5</td>
<td>3</td>
<td>8</td>
<td>15</td>
<td>11</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.3%</td>
<td>30.8%</td>
<td>31.0%</td>
<td>29.4%</td>
<td>15.8%</td>
<td>22.2%</td>
<td>30.6%</td>
<td>24.4%</td>
<td>27.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No seizures</td>
<td>10</td>
<td>12</td>
<td>22</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td>16</td>
<td>24</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>31.3%</td>
<td>46.2%</td>
<td>37.9%</td>
<td>35.3%</td>
<td>63.2%</td>
<td>50.0%</td>
<td>32.7%</td>
<td>53.4%</td>
<td>42.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GE versus PE - $x^2=4.1$  \( p = 0.1 \)
Male versus female - $x^2=1.46$  \( p=0.48 \)

Table 3: RESPONSE OF SUBLINGUAL LORAZEPAM IN EPILEPSY PATIENTS

<table>
<thead>
<tr>
<th></th>
<th>Once</th>
<th>Multiple times</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients used Lorazepam</td>
<td>11</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Seizures stopped</td>
<td>8 (72.7%)</td>
<td>9 (81.8%)</td>
<td>17 (77.2%)</td>
</tr>
<tr>
<td>No response</td>
<td>3 (27.3%)</td>
<td>2 (18.2%)</td>
<td>5 (22.8%)</td>
</tr>
</tbody>
</table>

REFERENCES:


19. Cockerell OC, Johnson AL, Sander JWAS, Shorvon SD. Prognosis of epilepsy: a review and further analysis of the first nine years of the British National General Practice Study of Epilepsy, a prospective population-based study. Epilepsia 1997;38:3–46.

PREVALENCE OF ROYA VIRUS DIARRHOEA IN CHILDREN AND
COMPARATIVE EVALUATION OF DIAGNOSTIC MODALITIES- A STUDY
DONE AT TERTIARY LEVEL HOSPITAL OF WESTERN RAJASTHAN

Dhakar Lokesh¹ Prakash Prabhu²

¹Professor, Department of Microbiology, Dr S. N. Medical College, Jodhpur, Rajasthan, India.
²Resident, Department of Microbiology, Dr S. N. Medical College, Jodhpur, Rajasthan, India.

Corresponding Author Mail ID:- dr.prabhuprpakash@gmail.com

ABSTRACT:

Background: Rota virus is most common cause of severe diarrhoea in infants and young children worldwide. In India it is estimated that 20-30% of hospitalised diarrhoea[3] cases are caused by Rotavirus, a pathogen that is not affected by improvement in clean water and hygiene.

Results: The present study is a prospective study of total 447 patients whose stool samples were submitted for examination from May 2016 to April 2017. Out of them 126 (28.19%) samples were positive by Rotavirus LCT. Prevalence of Rotavirus diarrhoea in children less than 3 years was 32.83% (110/335) and in children more than 3 year were 14.28% (16/112). This difference was statically significant (P value 0.0013). The total agreement of LCT in comparison to ELISA was 85.32%. The Cohen’s Kappa coefficient for this comparison was 65.21%.

Conclusions: Our finding suggest that chances of Rotavirus infection has not related to living standard and sex distribution and in resource poor setting where ELISA is not performed LCT can be an alternative to ELISA for Rotavirus diagnosis.

Key Words: LCT, ELISA ,EM,PAGE,RT -PCR,

Introduction: The World Health Organization estimatd 1.5 bilion episode of diarrhoea occures in children <5 year old annually resulting in 3 million deaths¹. Rota virus is most common cause of severe diarrhoea in infants and young children worldwide. Nearly 25-35% of childhood hospitalisation for severe diarrhoea result from infection with rotavirus, a pathogen that is not affected by improvement in clean water and hygiene². In India it is estimated that 20-30% of hospitalised diarrhoea[3] cases are caused by Rotavirus and India spend approximately 2-3.4 billion ( US$ 41-72 million ) annually for treatment of Rota virus diarrhoea in children⁴.
Rota virus is member of family Reoviridae. The Rotavirus genome contains double stranded RNA (dsRNA) genome with 11 segments. Mature Rota virus particle are 75 nm in size with icosahedral symmetry. The capsid made up of three layer – the outer layer, intermediate layer and inner core layer. The route of transmission is feco-oral route with symptoms develop after 1-2 days. Majority of children infected with rotavirus with in the first three year of life, with peak incidence of Rotavirus diarrhoea between 6 to 24 months[5]. The presenting sympoms are vomiting and diarrhoea with little or no fever. The diarrhea was generally considered to be malabsorptive, secondary to enteroocyte destruction. There is no blood and mucus in stool. Oral rehydration therapy for patient are most likely to fail because of vomiting, which is also a common presenting symptom[2]. Government of India included the Rotavirus vaccine in universal immunization programme in Rajasthan in April 2017 in fourth phase (Rotavac- an indigenously developed vaccine). Rotavirus vaccine reduces the Rotavirus associated death and decreases number of severe cases and hospitalization.

Laboratory procedures for diagnosis of rotavirus include electron microscopy (EM), passive latex agglutination assays (LA), electro phenotyping using polyacrylamide gel electrophoresis (PAGE), enzyme linked immunosorbent assays (ELISA) and reverse transcription-polymerase chain reaction (RT-PCR)[6]. Enzyme linked Immuno Sorbent Assay (ELISA) is method of choice for routine screening. It is rapid (4 hours), easy to perform, sensitive and specific. Documentation of Rota virus disease in rural and semi urban area is a challenge so Lateral Chromatographic Test (LCT) is economical alternative to ELISA. This is a red side test which is performed without need for special equipment.

This study aims to determine the prevalence of rotavirus diarrhoea and various influencing factors. This study also try to determine correlation between LCT and ELISA at tertiary level hospital.

**Material and Method:** This is a hospital based prospective study carried out in Umaid Hospital Microbiology Lab, Department of Microbiology Dr. S.N. Medical College Jodhpur for a period of 12 month from May 2016 to April 2017. Samples were taken from patients having complaints of ‘Diarrhoea’ attending OPD/Hospitalised for same in Dept. of Paediatrics, Umaid hospital and Mathura Das Mathur Hospital. Informed and written consent was taken from patients and their attendants. The study protocol was approved by the Ethical committee of Dr. S. N. Medical College Jodhpur, Rajasthan.

**Laboratory procedures:** All patients who gave consent were instructed to collect freshly passed stool sample without contamination of urine. After proper labeling sample was
transported to microbiology laboratory and processed immediately for Macroscopic. Microscopic examination and Culture. All Macroscopic and Microscopic examination was done on same stool sample. No preservative were added during sample collection and examination.

Rotavirus antigen detection was done by LCT (SD Bio line) and ELISA (Rotavirus ELISA – Premier Rotaclone) according to manufacturer’s instructions. Samples were preserved at -20°C for ELISA.

RESULTS:

The present study is a prospective study of 447 patients whose stool samples were submitted for examination from May 2016 to April 2017. Out of 447 diarrhoea patients 259(57.94%) patients were male and 188(42.06%) patients were females. Maximum number of patients were enrolled in age group 6-24 month were 261(58.39%) followed by age group 2-5 year were 107(23.94%). In this study 233(52.13%) patients from rural background and 214(47.87%) from urban background.

In this study 447 stool sample were tested for Rotavirus antigen detection. Out of them 126(28.19%) samples were positive for Rotavirus by LCT. Most Rotavirus positive patient was from age group 6-24 month 94(74.60%) followed by age group 2-5 year 25(19.84%), age group >5 year 4(3.17%) and in age group 0-6 month 3(2.38%).

Prevalence of Rotavirus were maximum in 6-24 month (36.02%) followed by age group 2-5 year (23.36%), 0-6 month (9.68%) and > 5 year (7.69%). Prevalence of rotavirus diarrhoea were significantly high in age group 6-24 month with P value (0.0006). Rotavirus diarrhoea was more prevalent in rural patients (28.76%) then urban patients (27.57%), but this difference was statically not significant (P value 0.80).

Out of total 447 stool sample tested for Rotavirus most positive samples were received during month of November-2016 54(42.86%) followed by in month December-2016 32(25.40%) and January-2017 14(11.11%). The prevalence of Rotavirus was also highest during month of November-2016 (52.94%) followed by December-2016 (38.55%) and January-2017 (26.42%). Rotavirus diarrhoea was more prevalent during winter months of a year.

Due to financial reason Rotavirus ELISA were done for all LCT positive samples and randomly selected LCT negative samples. Out of 184 samples Rotavirus ELISA were positive for 131(71.20%) and negative for 53(28.80%) samples.
Comparative results of LCT and ELISA shown in table no. 13. The total agreement of LCT in comparison to ELISA was 85.32%. The Cohen’s Kappa coefficient for this comparison was 65.21%.

(There isn’t clear-cut agreement on what constitutes good or poor levels of agreement based on Cohen’s kappa, although a common set of criteria is: less than 0% no agreement, 0-20% poor, 20-40% fair, 40-60% moderate, 60-80% good, 80% or higher very good.)

**DISCUSSION:**

This is a hospital based prospective study carried out in Umaid Hospital Microbiology Lab, Dr. S.N. Medical College Jodhpur. This study was done from May 2016 to April 2017 for a period of 16 month. During the study period a total of 447 stool samples were examined for Rotavirus antigen.

In present study Rotavirus associated with 28.19% (126/447) of diarrhoea cases as a sole agent (94.44%) or associated with another parasitic pathogen (5.56%). Rotavirus mostly presented with acute watery diarrhoea in age group 6-24 month of age as compared to other age group (P value 0.0006). Prevalence of Rotavirus in present study coincides with different studies done across the world.

According to study done by Nair et. al. (2010)[6] in Kolkata Rotavirus was detected in 19.6% of diarrhoea patient and as the sole pathogen in 42.2% cases and mixed pathogen seen in 57.8% (285/493) of cases. Mixed infection of Rotavirus with parasite was seen in 23.7%. Prevalence of rotavirus in this study is lower than present study but mixed infection is much higher than the present study this may be due to difference in age structure of patient population, geographical and environmental condition. In this study Rotavirus was associated with patients in <5 years age group (48.1%) than in the higher age group (9.7%) and this association was statistically significant.

According to study done by Moyo et. Al.[7] in 2011, they found enteric viruses in 32.2%. In children aged 7-12 months diarrhoea was more often due to viruses, mainly Rotavirus and Norovirus. Prevalence in this study coincides with present study and study from Jorden[12] also have similar result. Another study from Saudi Arabia[9] have lower prevalence (22%) and study From Utter Pradesh India[8] showed higher prevalence (41.2%) of diarrhoea in hospitalized patient.
Prevalence of Rotavirus associated diarrhoea in present study in male and female are 30.5% and 25% respectively, but the difference is statically not significant. A study by Teotia et. al.[8] in U.P. India have similar findings as Rotavirus positivity rate did not differ significantly by sex (34.7% among boys vs. 24.3% among girls).

Rotavirus diarrhoea has seasonal variability with peak seen during the month of November to January with prevalence ranging from 26.42% to 52.94%. Similar result has showed by Nair et. al.[6] in Kolkata according to this study Rotavirus mediated diarrhoea had distinct seasonality with peaks during December-February (winter).

In present study the total agreement rate between LCT and ELISA is 85.32% and Cohen’s Kappa coefficient is 65.16%. Which show a good agreement between these two tests. Study done by Kim et. al.[9] in 2014 shows total agreement between LCT and ELISA 95.8% and Kappa coefficient 0.857, which show excellent agreement between these two tests.

CONCLUSION:

In this study most of cases were detected during winter months and didn’t find the significant difference of prevalence according to sex and demography. This finding shows that chances of Rotavirus infection has not related to living standard and sex distribution. So only mode of prevention is vaccination. Rotavirus vaccine reduces the Rotavirus associated death and decreases number of severe cases and hospitalization. There is good agreement (K=65.21%) between Rotavirus LCT and ELISA, so in resource poor setting where ELISA is not performed LCT can be an alternative to ELISA for Rotavirus diagnosis.

REFERENCES:


### Table No. 1

**Distribution of Rotavirus according to Age group**

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<thead>
<tr>
<th>Age group</th>
<th>Total</th>
<th>Positive</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>138</td>
<td>45</td>
<td>35.71%</td>
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</tr>
<tr>
<td>1_3</td>
<td>197</td>
<td>65</td>
<td>51.59%</td>
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<td>3_5</td>
<td>64</td>
<td>12</td>
<td>9.52%</td>
<td></td>
</tr>
<tr>
<td>5_10</td>
<td>32</td>
<td>2</td>
<td>1.59%</td>
<td></td>
</tr>
<tr>
<td>11 &amp; more</td>
<td>16</td>
<td>2</td>
<td>1.59%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>447</td>
<td>126</td>
<td>100%</td>
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**SEX**

<p>| | | | |</p>
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<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Male</td>
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<td>79</td>
<td>62.70%</td>
</tr>
<tr>
<td>Female</td>
<td>188</td>
<td>47</td>
<td>37.30%</td>
</tr>
</tbody>
</table>

**Demography**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>233</td>
<td>67</td>
<td>53.17%</td>
</tr>
<tr>
<td>Urban</td>
<td>155</td>
<td>59</td>
<td>46.83%</td>
</tr>
</tbody>
</table>

**Fig.1. Distribution of Rotavirus according to Sex**

- Male
- Female
Fig. 2. Distribution of Rotavirus according to Demography

Table No. 2
Seasonal variation in Rotavirus

<table>
<thead>
<tr>
<th>Month</th>
<th>Total</th>
<th>Positive</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>May-16</td>
<td>10</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Jun-16</td>
<td>6</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Jul-16</td>
<td>11</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Aug-16</td>
<td>66</td>
<td>5</td>
<td>3.97%</td>
</tr>
<tr>
<td>Sep-16</td>
<td>29</td>
<td>6</td>
<td>4.76%</td>
</tr>
<tr>
<td>Oct-16</td>
<td>44</td>
<td>6</td>
<td>4.76%</td>
</tr>
<tr>
<td>Nov-16</td>
<td>102</td>
<td>54</td>
<td>42.86%</td>
</tr>
<tr>
<td>Dec-16</td>
<td>83</td>
<td>32</td>
<td>25.40%</td>
</tr>
<tr>
<td>Jan-17</td>
<td>53</td>
<td>14</td>
<td>11.11%</td>
</tr>
<tr>
<td>Feb-17</td>
<td>7</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Mar-17</td>
<td>19</td>
<td>3</td>
<td>2.38%</td>
</tr>
<tr>
<td>Apr-17</td>
<td>17</td>
<td>6</td>
<td>4.76%</td>
</tr>
</tbody>
</table>
Fig. 3. Seasonal variation of Rotavirus

Table No. 3

Result of Lateral chromatography in comparison to ELISA

<table>
<thead>
<tr>
<th>LCT</th>
<th>ELISA</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Positive</td>
<td>115</td>
</tr>
<tr>
<td>Negative</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
</tr>
</tbody>
</table>
ORIGINAL RESEARCH ARTICLE
ANALYSIS OF CASES OF MANDIBULAR FRACTURES AT A TERTIARY CARE CENTER IN WESTERN RAJASTHAN
Chattopadhyay Chandrashekhar\textsuperscript{1}, Deo Vikas\textsuperscript{2}, Jindal Pankaj\textsuperscript{3}
\textsuperscript{1} Assistant Professor, Department of General Dentistry, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
\textsuperscript{2} Associate Professor, Department of General Dentistry, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
\textsuperscript{3} Senior Resident, Department of General Dentistry, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
Corresponding Author: Dr Chandrashekhar Chattopadhyay
Contact No. 9950152697, Email ID: chatto1975@gmail.com

ABSTRACT

Objective: To determine the pattern of presentation and management outcomes of mandibular fractures in our patients.

Study Design: Retrospective Descriptive study

Place and Duration: This study was conducted in the Department of Dental Surgery, of the Government Medical College of western Rajasthan from May 2013 to December 2016.

Materials and Methods: Adult patients (chronological age $\geq$ 12 yrs) of either sex having only mandibular fractures were included. In all the cases, Maxillo-Mandibular Fixation (MMF) was achieved using Stainless steel Intermaxillary fixation screws (IMF Screws) and 26 gauge stainless steel wires. These patients were operated either under general anaesthesia with nasal intubation or local anaesthesia (lignocaine hydrochloride 2\% with 1:100000 adrenalin).

RESULTS:

In N=157 patients (114 in males and 43 in females), 293 fractures were noted. Majority of the patients were males (72.61\%) with a male to female ratio of 2.65:1. The age ranged from 13-79 years (Mean 32.4 years in males and 36.3 years in females). Road traffic accidents (67.9\%) were the most common cause. Parasympophysial fractures (36.9\%) were most frequently found followed by the fractures of subcondylar region (25.3\%). Various methods of fixation employed included Maxillo-Mandibular Fixation (n=17), miniplates plates (n=135), reconstruction plate (n=4) & Lag screws(n=1). The most frequent complication observed in these patients was the pain ± lower lip paresthesia.

CONCLUSION:

Early intervention including reduction and fixation of mandibular fractures definitely decreases the morbidity and healing period. Open reduction and internal fixation of mandibular fractures should be undertaken wherever possible.

Key Words: Mandibular fractures; Maxillomandibular fixation; Maxillofacial trauma
Analysis of Cases of Mandibular Fractures at a Tertiary care center in Western Rajasthan

INTRODUCTION
Contemporary management of mandibular fractures have a lower infection rates, use of rigid fixation over fractured segments results in improved bony union and decreased need of maxillomandibular fixation, thus leading to decrease in overall morbidity [1]
The mandible is the second most commonly fractured part of the maxillofacial skeleton due to its position and prominence. The treatment is usually needed because of the potential functional deformities, [2, 3]
The location and pattern of the fractures are determined by the mechanism of injury and the direction of the vector of the force. In addition to this, the patient's age, the presence of teeth, and the physical properties of the causing agent also have a direct effect on the characteristics of the resulting injury [4]
The pattern of the mandibular fractures has been reported in literature from several countries and these vary from country to country and it is clear that some of the variations can be attributed to social, cultural and environmental factors,[5-7]
Very few published studies are available on the patterns of mandibular fractures in various regions of India although the variables associated with mandibular fractures are enormous.
The purpose of this study was to evaluate the demographic details of the mandibular fractures, age and sex related etiology, types of the fractures and various treatment options most suited within given resources due to constraints of poor socioeconomic standard while providing state of the art postsurgical results to bulk of these patients for these fractures in Western part of Rajasthan comprising of 5 largest districts of the state.

MATERIALS AND METHODS
This retrospective descriptive study was conducted in the Department of Dental Surgery Dr SN Medical College Jodhpur Rajasthan from May 2013 to December 2016. Adult patients of either sex having mandibular fractures were included in this study. Age, sex, etiology, associated injuries anatomic classification of fractures and treatment modalities undertaken in these patients were recorded. Almost all the patients reported initially in casualty and trauma department. The management was started with the maintenance of airway, control of bleeding, antibiotic coverage, analgesics and head elevation.
Direct wiring was applied to achieve immobilization prior to the definitive treatment in majority of the case barring a few cases of complex mandibular fractures or where patient
was initially intubated as part of life saving measures or preliminary resuscitation especially in case of head injuries with GCS <8-9 with multiple mandibular fractures. Regular mouth washes and liquid/semi solid diet were prescribed. In all cases, plain Radiographs, OPG (Orthopantomogram), or CT scan were obtained. Majority of the patients were operated as planned surgical cases. These patients were operated under general anaesthesia with nasal intubation or local anaesthesia (lignocaine hydrochloride 2% with; 100000adrenalin) by the same operator.

RESULTS: In N= 157 patients (114 in males and 43 in females), 293 fractures were observed. Majority of the patients were males (72.61%) with a predominant male to female ratio of 2.65:1

Chart I
The chronologic age ranged from 13-79 years (Mean 32.4 years in males and 36.3 years in females)

Table I
Road traffic accidents (67.9%) were the most common cause followed by assaults and domestic incidents such as falls. Table II
Parasympophysial fractures (36.9%) were most frequently observed followed by the fractures of subcondyle region (25.3%), body (15%) angle (13%) Ramus (8%) and coronoid (1%). Chart II

FIGURE I: COMMON FRACTURE SITES IN MANDIBLE
The various associated injuries found are shown in table III. Head injury being in higher side.
In 69.5% of the patients, intra-oral surgical approaches were used and only in 19.68% patients, extraoral approach were used including cases of existing extraoral lacerations and subcondylar fractures .10.9% patients underwent non surgical approach(IMF Only). 100% patients Internaxillary fixation screws(Cortical) were used for Maxillomandibular fixation. Various methods of fixation employed were Maxillo-Mandibular Fixation (n=17), miniplates plates (n=135), reconstruction plate (n=4)& lag screws (n=1). (Table IV).
There were very few complications.2.8% patients had palpable plates. There was plate infection in 2 cases and breakage of the plates in none. 15.5% patients had lower lip paraesthesia which was attributed to the initial injury.
DISCUSSION

Mandibular fractures account for 35%-45% of pan facial fractures.[8] The incidence of mandibular fractures varies with age, region, a period of time, climatic conditions, socio-economic differences, traffic volume, road traffic accidents and preventive measures adopted by government and society in different countries. [9-11]

Mandibular fractures are not uncommon in Rajasthan in general and western Rajasthan in particular. Still being a male dominant region, the males work outside and hence are more susceptible to accidents. This observation is in conformity with what is reported by other studies. [7]

The most common etiology of mandibular fractures was road traffic accidents, which is similar to studies carried out various part of India. Accidents reporting in our set up are due to socio-economic conditions and violations of traffic rules and due to the alcoholic intoxication as reported in various developing regions [11,16] but in contrast to the observations in other regions (developed countries) Interpersonal violence is the most common cause for mandibular fractures in North-American countries and Europe[2,19]

Our finding of the highest frequency of mandibular fractures in the 20-39 years age group are in agreement with that reported from other countries.[7,13] Similarly, mandibular fractures have been reported to be more common in males. In a study by Sakr et al.[6] carried out in Egypt also revealed that male to female ratio was 3.6:1 and most fractures were sustained by men in the age group 21-40 years.

Majority of the patients in present study had the associated injuries. General surgeon and orthopedic manager chest and limb injuries whereas Head injuries were managed by Neurosurgeons of the institute. Intra-oral approach for reduction was preferred leaving no residual facial scar. Most of the studies carried out do not mention the route of approach (intra-oral or external). Though a few have mentioned [20] We used, intra-oral surgical approaches in 69.5% of the patients and only in 19.68% patients, extraoral approach were used including cases of existing extraoral lacerations and subcondylar fractures. 10.9% patients underwent non-surgical approach(IMF Only). This approach were used for only undisplaced mandibular fractures or when patient did not gave consent for Surgery. We used maxillomandibular fixation (MMF) in only 10.9% of the fractures (2.3% condylar/subcondylar, 0.6% ramus, 6.8% parasymphysial, 0.6% angle). Open reduction and internal fixation were done by using lag screws(n=1)(0.6%), mini-plates & reconstruction plates made of medical grade Titanium alloy. MMF was also done in these patients but the duration of MMF was shorter as compared to the MMF alone (1-2 weeks Vs 6-8 weeks).
This shorter duration resulted in early mobilization of the jaws. Furthermore, we used orthodontic yellow elastic rubber bands for 1-2 weeks in some patients to continue active mouth opening exercises to avoid any postoperative temporomandibular ankylosis (Subcondylar fractures). The complications were few, mostly attributed to the initial injury, including postoperative pain (13.9%), mal-occlusion (1.8%). In two cases, infection of plates (periimplantitis) occurred secondary to poor post-operative oral hygiene which were removed surgically. Plates were palpable in 4 cases. In 15.5% patients, lower lip paresthesia/anesthesia was noted due to the fact that mental nerve was severed pre-operatively. However 76% of these case had positive tinel sign observed within 2 months. Titanium implants were used in all cases Bio-absorbable plate system could not be used due to financial constraints.\[21\]

Being a developing region of the country, the socio-economic status of majority of the patients was low. As Patients came to a single medical college catering to 5 major districts, from far flung areas, these factors contributed to the irregular follow-up of these patients.

**CONCLUSION**

Very few published studies are available on the pattern of mandibular fractures in western Rajasthan (India) although the variables associated with mandibular fractures are enormous and common. Early intervention including reduction and stabilization (fixation) of mandibular fractures decreases the morbidity and healing period along with post traumatic complications. It is recommend that open reduction and internal fixation of mandibular fractures should be undertaken wherever possible even in developing countries as it leads to improvement of quality of life after trauma. Also strict road safety measures should be taken by authorities to decrease the incidence of mandibular fractures.

**Conflict of interest:** NONE

**REFERENCES**


16. Amiya Agrawal, Chandel et al. Maxillofacial fracture patterns in North Indian urban population. Journal of Dental Sciences and Research Vol. 4, Issue 1, Pages 1-4


**FIGURE 1** : Common Fracture sites of Mandible

**CHART 1**: Gender Distribution

![Gender Distribution Chart](chart1.png)
Table 1: AGE DISTRIBUTION

<table>
<thead>
<tr>
<th>AGE</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20 Yrs</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>20-30 Yrs</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>30-40 Yrs</td>
<td>49</td>
<td>22</td>
</tr>
<tr>
<td>40-50 Yrs</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>50-60 Yrs</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>60-70 Yrs</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>70-80 Yrs</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>80-90</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 2: Causes of mandibular fractures (N=157)

<table>
<thead>
<tr>
<th>CAUSE</th>
<th>Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Traffic Accidents</td>
<td>106</td>
<td>67.9</td>
</tr>
<tr>
<td>Assaults including domestic violence</td>
<td>22</td>
<td>14.0</td>
</tr>
<tr>
<td>Domestic Accidents(Fall etc)</td>
<td>13</td>
<td>8.20</td>
</tr>
<tr>
<td>Industrial Accidents</td>
<td>4</td>
<td>2.54</td>
</tr>
<tr>
<td>Sport related</td>
<td>8</td>
<td>5.80</td>
</tr>
<tr>
<td>Gunshot</td>
<td>2</td>
<td>1.27</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2</td>
<td>1.27</td>
</tr>
</tbody>
</table>
Table 3: Associated injuries observed among the patients (n=157)

<table>
<thead>
<tr>
<th>Injuries</th>
<th>Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial lacerations</td>
<td>54</td>
<td>34.39</td>
</tr>
<tr>
<td>Limb injuries</td>
<td>19</td>
<td>12.01</td>
</tr>
<tr>
<td>Head injury</td>
<td>28</td>
<td>17.83</td>
</tr>
<tr>
<td>Chest/Abdomen injuries</td>
<td>02</td>
<td>01.27</td>
</tr>
<tr>
<td>Cervical injuries</td>
<td>01</td>
<td>00.63</td>
</tr>
</tbody>
</table>

Table 4: Methods of reduction and fixation

<table>
<thead>
<tr>
<th>Operative Modality</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMF Only</td>
<td>17</td>
<td>10.9</td>
</tr>
<tr>
<td>IMF WITH MINIPLATE</td>
<td>135</td>
<td>85.9</td>
</tr>
<tr>
<td>IMF WITH RECON PLATE</td>
<td>4</td>
<td>02.54</td>
</tr>
<tr>
<td>LAG SCREWS</td>
<td>1</td>
<td>00.63</td>
</tr>
</tbody>
</table>
CASE REPORT
CARDIAC CEPHALGIA: AN UNCOMMON PRESENTATION OF A COMMON DISEASE
Mathur Rohit
Associate Professor, Department of Cardiology, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

INTRODUCTION
Cardiac cephalgia (CC) is the headache precipitated by ischemic heart disease (IHD). It was first defined as a separate entity in 1997.[1] Classically, angina presents as precordial pain/discomfort with radiation to sites such as left upper limb, back, neck, jaw, and epigastrium. However pain may occur in abnormal sites too. Headache may be the only presentation of coronary artery disease (CAD). The diagnosis relies on the presence of severe headache which gets worsened by physical exercise or stress, and relieved with rest and/or sublingual nitrate administration. We report a case of 51 yr old male who presented with new onset exertional headache, and was found to be having severe CAD.

CASE REPORT
A 51 yr old male, a known case of hypertension and type 2 diabetes mellitus (T2DM), with the history of CAD and post stenting to Left Circumflex (LCX) artery and Left anterior descending (LAD) in 2016, presented with the chief complaints of bilateral jaw pain and headache on exertion, restricted to forehead for the past 10 days. Headache used to get relieved by taking sublingual nitrate or rest. Clinical examination, including neurological examination, did not reveal any abnormality. Complete blood counts, blood biochemistry, serum troponin levels were within the normal range. Electrocardiogram (ECG) showed normal sinus rhythm with normal QRS axis.
Patient underwent coronary angiography (CAG) which showed triple vessel disease (TVD) with patent LAD stent and 50% in-stent restenosis (ISR) of LCX stent.[Fig 1] Patient underwent percutaneous transluminal coronary angioplasty (PTCA) to Ramus with 2.5×23 mm drug eluting stent (DES).[Fig 2] Patient experienced relief in his symptoms. Patient had an uneventful course in the hospital and was discharged on dual antiplatelets (DAPT) and statin.
Fig 1: CAG showing patent LAD stent and LCX ISR with Ramus Intermedius showing mid 95% lesion (arrow)

Fig 2: CAG post PTCA to Ramus intermedius
DISCUSSION

Cardiac cephalgia also known as angina capitis, angina cranialis, or simply as “headache angina”, is a rare condition reported to be around 6% by Sampson et al in 1971.[2] According to the International Classification of Headache Disorders (ICHD), 3rd edition, a diagnostic criteria has been proposed. [3] Cardiac cephalgia is suggested by the presence of at least two of the following:

1. Headache developed in temporal relation to onset of acute myocardial ischemia;

2. Headache worsened with worsening of the myocardial ischemia or headache improvement with improvement in the myocardial ischemia;

3. At least two of the following four characteristics:
   a. Moderate to severe intensity,
   b. Accompanied by nausea,
   c. Not accompanied by photophobia or phonophobia, and
   d. Aggravated by exertion; and

4. Headache is relieved by nitroglycerine or its derivatives.

Four theories have been postulated to understand the pathophysiology of cardiac cephalgia:

a. Convergence theory: which says that afferent somatic and visceral fibers converge on the same neurons, and stimulation of visceral afferents causes relay of information corresponding to somatic region [4].

b. Increase in intracranial pressure [5].

c. Cardiac ischemia causes release of neuromediators—serotonin, bradykinin, histamine, substance P, ANF (atrial natriuretic factor), which result in vasodilatation of the cerebral vessels and cause pain.[6]

d. Concurrent constriction of both cardiac and the cerebral vessels [7].

Our patient met the diagnostic criteria of cardiac cephalgia. He had exertional headache which was relieved by sublingual nitrate and experienced relief in his symptoms post revascularization. His stay in the hospital post revascularization was uneventful and was discharged without any complication Cardiac cephalgia is a rare form of exertional headache. It is important to have the knowledge of this condition as early diagnosis may prevent any catastrophe. It should be especially suspected in elderly patients with underlying cardiovascular risk factors and presenting with exertional headache.
REFERENCES:


CASE REPORT

CUTANEOUS LARVA MIGRANS

Chouhan Chandraprakash¹, Kachhawa Dilip², Rao Pankaj³

1. Assistant Professor, Department of Skin, VD and Leprosy, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
2. Senior professor, Department of Skin, VD and Leprosy, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
3. Assistant Professor, Department of Skin, VD and Leprosy, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

Corresponding Author: Dr Chandraprakash Chouhan , F-46, PRATAP NAGAR JODHPUR.
Mob:- 9887503165. Email:- chandraprakash.chouhan@gmail.com.

ABSTRACT:

Background:
Cutaneous larva migrans may be diagnosed by the typical clinical presentation, consisting on a pruritic serpiginous lesion.

CASE PRESENTATION

52 -year-old man, presented with a 1.5month history of pruritic cutaneous lesions that had not resolved after treatment with oral antihistamines and topical fluocinolone ointment. Physical examination showed a serpiginous, erythematous and slightly elevated lesion of variable length present in between pruritic papulovesicular and eczematous lesions on back and left upper shoulder . Patient affirmed that the lesion advanced progressively. Laboratory analyses only revealed an elevated absolute eosinophil count. Biopsy taken but not significant.

Ivermectin 12mg once weekly was administered to the patient with complete resolution of symptoms within 1 week. Lesions almost completely healed within 1 month.

CONCLUSION:

We review clinical, diagnosis and therapeutic options with excellent response to oral ivermectin to cutaneous larva migrans.

Key words:- Serpiginous, Papulovesicular lesions , Eosinophil count
52 year old man presented with 1.5 month history of pruritic cutaneous lesions that had not resolved after treatment with oral antihistamines and topical fluocinolone ointment. He had no other symptoms and was otherwise well. His medical history was irrelevant.

Physical examination showed a serpiginous, erythematous and slightly elevated lesion of variable length present in between pruritic papulovesicular and eczematous lesions on back and left upper shoulder (image 1). Patient affirmed that the lesion advanced progressively. He has taken antihistamines, oral and topical steroid and antibiotic treatment but no improvement in symptoms and cutaneous lesions. The remainder of his physical examination was within normal limits. Laboratory analyses only revealed an elevated absolute eosinophil count ($1534 \times 10^9/L$).

Ivermectin 12mg once weekly was administered to the patient with complete resolution of symptoms within 1 week (image 2). Lesions healed completely within 1 month (image 3).
DISCUSSION
Cutaneous larva migrans – also known as creeping eruption or sandworm disease – is caused by larvae of animal hookworms. Ancylostoma braziliense is the most common offender [1]. The disease is endemic in resource-poor communities in the developing world, particularly in Brazil, India, and the West Indies. Most often, people pick up the infection by walking through contaminated areas barefoot or with open-type shoes, or by sitting in tainted soil or sand [1].

The main affected areas are the dorsum and sole of the feet (uni and bilateral), buttocks, pelvic waist, legs and shoulders. More than one lesion is compatible with more than one entry point. The main signs and symptoms are linear and/or serpiginous lesions (which progress from 2–3 mm to 2–3 cm per day) and the pruritus. This is intensified after some days by the inflammatory reaction of the host and may even interfere with sleep. Systemic signs include peripheral eosinophilia (Loeffler syndrome), migratory pulmonary infiltrates, and increased immunoglobulin E levels, but are rarely seen.

The diagnosis of hookworm-related cutaneous larva migrans is easily made clinically on the basis of typical clinical presentation which is a pruritic serpiginous lesion. Creeping eruption as a clinical sign is diagnostic; a biopsy is not useful.

Even though the condition is self-limited, the intense pruritus and risk for infection mandate treatment. Different therapeutic approaches are effective: a single dose of ivermectin (200 μg per kg bodyweight) kills the migrating larvae effectively and relieves itching quickly. Oral albendazole (400 mg daily), given for 5–7 days, shows excellent cure rates and the drug is well-tolerated by patients [3]. Thiabendazole (50 mg per kg bodyweight for 2–4 days) was widely used after the first report of its efficacy in 1963. However, given orally the substance is poorly tolerated, and frequently causes dizziness, nausea, vomiting, and intestinal cramps [2]. Topical thiabendazole 10% cream, although less effective, is a good alternative for young children to avoid the potential side effects of systemic medications.

The prognosis is excellent. This is a self-limiting disease. Humans are accidental, dead-end hosts, with the larva dying and the lesions resolving within 4–8 weeks, as long as 1 year in rare cases.

In prevention, it is best to wear shoes that completely cover the feet. Also, one should avoid sitting or lying on bare sand, even if on a towel. Deworming of pets is recommended [1].
REFERENCES


CASE REPORT

OCCUPATIONAL INJURY – THE NAIL THAT CAUSED DEATH

Imran Shaikh¹, Anil Bishnoi², P C Vyas³

1. Senior Demonstrator, Department of Forensic Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
2. Resident, Department of Forensic Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
3. Professor, Department of Forensic Medicine, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

ABSTRACT

Work place, especially factories in Indian set up are infamous for their low standards of safety and fewer precautionary measures for the labourers. The people working are always at risk of sustaining mechanical injuries some of which go unnoticed at times. A meticulous post-mortem examination is required in cases where death is sudden and no obvious external findings are visible to know the cause of death[1]. One such case is being discussed here in which death due to occupational mechanical injury was revealed after meticulous post mortem examination though history given by relatives and the police was different.

Keywords: - occupational injury, accidental, meticulous

INTRODUCTION

Mechanical injuries in factory setup are common occurrence in India, though not always fatal most of these can be attributed to lack of precautionary and safety measures. Nearly 48,000 workers die in the country due to occupational accidents.[6] Most of the said injuries are grossly visible, but in certain cases as the one being discussed there was minimal external injury just a “nail-head” sized, and no resting symptoms but a fainting attack that too hours following the actual trauma incident. Lack of primary health care and first aid at nearby premises is an alarming feature. It was only after Post mortem that it was revealed that cause of death was due to punctured lacerated wound and a nail was found embedded in situ near sternum and piercing the pericardial sac and heart with minimal exterior injury or bleeding.

Case report

A 19 year old Hindu male, furniture factory worker was brought dead by police to Mathuradas Mathur Hospital with history of sudden death following an episode of vertigo (chakkar) while riding as a pillion on a motorcycle while returning from work on 23/07/2017 at 7.50pm.

Autopsy finding:-

It was the body of an averagely built and averagely nourished boy with brown coloured t shirt and green shorts lying in supine position on autopsy table both eyes are closed, mouth is
closed. Post mortem lividity present over dependent parts except pressure points over the back side. Following injury was noted.

1. A 3mm diameter oval shaped punctured lacerated wound present over the sternum 2 cm left of midline at the level of 4th intercostal space with red coloured scab over it. On dissection there was subcutaneous and intramuscular hematoma of size 3cm x 3cm below the lesion and a metallic nail of 4cm length was present embedded in and passing through the body of sternum, puncturing the pericardium and the anterior wall of right ventricle of the heart. There is collection of about 80 ml of clotted blood in the pericardial cavity encircling the heart. All 4 chambers of heart are empty and the heart is in a contracted state. All other organs including the lungs, kidneys, liver, spleen, stomach, intestines were intact and no abnormality detected. The cause of death was hemorrhagic shock as a result of nail injury causing penetrating wound to the heart and pericardium.

**Discussion**

Severe mechanical injuries in a factory setting hardly go unnoticed, especially by the victim. Here the nail that penetrated the victims sternum was thin and 4 cm long but he was either unaware of the injury or he considered it too trivial to report and did not get medical help which proved to be a big mistake. The point also to be noted that though the patient suffered from penetrating cardiac injury, he was not complaining of any symptoms earlier and only fainted to his death. Penetrating cardiac trauma is highly lethal injury and even those surviving to hospital have a mortality rate of 80%. Cardiac tamponade is a medical emergency in which blood or fluids fill the space between the sac that encases the heart and the heart muscle. This places extreme pressure on the heart. The pressure prevents the heart's ventricles from expanding fully and keeps the heart from functioning properly. The heart can't pump enough blood to the rest of the body when this happens. This can lead to organ failure, shock, and even death. Cardiac tamponade is usually the result of penetration of the pericardium. The causes of pericardial penetration or fluid accumulation might include: gunshot, stab wounds or accidental penetrating injuries. Treatment of cardiac tamponade is surgical and earliest hospitalisation is warranted.

**CONCLUSION**

Penetrating cardiac injuries, with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis, rapid surgical exposure and adherence to precise technical principles. If these tenets are followed in treating this deadly injury, reasonable survival can be achieved Penetrating cardiac injuries, with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis, rapid surgical exposure and adherence to precise technical
principles. If these tenets are followed in treating this deadly injury, reasonable survival can be achieved Penetrating cardiac injuries, with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis, rapid surgical exposure and adherence to precise technical principles. If these tenets are followed in treating this deadly injury, reasonable survival can be achieved Penetrating cardiac injuries with its attendant mortality, presents formidable clinical challenges. There is no other injury which demands expeditious diagnosis and rapid surgical intervention[5] In depth assessment of such injuries is crucial to both surgical planning and forensic case reconstruction. If these tenets are followed in treating this deadly injury only than reasonable survival can be achieved.[7]

Factory laborers face a number of occupational health and safety risks on the job. Reduction of vulnerability depends on recognition of these risk factors and implementation of effective prevention strategies. Thus it is recommended that the owners of both small and large scale industries have to give more attention for improving occupational safety measures and safe working environment through training, routine use of protective devices to foster health of the valuable workforce.[3]

REFERENCES

IMAGES

EXTERNAL SITE OF PUNCTURE.

METALLIC NAIL EMBEDDED IN STERNUM.

SITE OF PUNCTURE IN ANTERIOR WALL OF RIGHT VENTRICLE.
CASE REPORT

BROAD LIGAMENT RUPTURE ECTOPIC PREGNANCY (A RARE CASE REPORT)

Kumawat Ashok Kumar¹, Shaheen Rizwana², Desai Ranjana³

1. Resident, Department of Obstetrics & Gynaecology, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.
2. Professor, Department of Obstetrics & Gynaecology, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.
3. Professor, Department of Obstetrics & Gynaecology, Dr. S.N. Medical College, Jodhpur, Rajasthan, India.

ABSTRACT:

Broad ligament ectopic pregnancy is a rare and serious form of extrauterine pregnancy with a high risk of maternal mortality. There are no specific clinical features. Ultrasonography may help in diagnosis but definitive diagnosis is made only during surgery. A 20 year old women with h/o previous 2 abortions presented with acute abdomen. She had no history of amenorrhoea but there was a history of 02 episodes of bleeding in the last month at an interval of 14 days, each episodes lasting for 2-3 days. The last episode of bleeding 10 days back. Her UPT was positive. There was marked abdominal tenderness with guarding and rigidity. Per vaginal examination revealed marked tenderness in the right fornix and cervical motion tenderness, uterus size could not assessed due to tenderness. It was diagnosed as a case of ruptured ectopic pregnancy, since she was haemodynamically unstable, emergency laparotomy was done, she had a right sided broad ligament ectopic pregnancy which had ruptured. The tissue was completely removed and haemostatic sutures were taken. High index of clinical suspicion, early diagnosis and prompt surgery is the key of management.

KEYWORDS: broad ligament, ectopic pregnancy, laparotomy

INTRODUCTION:

Ectopic pregnancy is a type of pregnancy that occurs outside the normal uterine cavity. Fallopian tube is the most common site of ectopic pregnancy (95% cases) and abdominal accounts for 1%. Ectopic pregnancy in the broad ligament ia a retroperitoneal abdominal pregnancy in which the foetus of gestational sac develop within the leaves of the broad ligament. It has a reported incidence of 1 in 183900 pregnancies and occurs in about 1 in 245 ectopic pregnancies.

The maternal mortality rate has been reported to be high as 20%.
This is because of massive haemorrhage from partial or total placental separation or rupture of gestational sac in to peritoneal cavity.

For an abdominal pregnancy, to reach advanced stage of gestation with viable foetus is very uncommon.

In recent years, more and more patients were diagnosed in 1st trimester.

There are no specific clinical features for the rare form of ectopic pregnancy to enable diagnosis to be made preoperatively.

It thus remains a major diagnostic challenge on laparotomy.

Definitive diagnosis is made only on surgical exploration.

Here we are describing a case of ruptured broad ligament ectopic pregnancy at a very early gestational age that was diagnosed on laparotomy.

In our institution, 100 ectopic pregnancies are being operated from Jan 2018 to June 2018 and this was the only case reported till date in last 6 months.

**CASE REPORT:**

A 20 year old women with previous 2 abortions presented on 6 Feb 2018 with generalized abdominal pain since few hrs. she had no complain of bleeding per vaginal. She had no history of amenorrhea but there was history of 2 episodes of bleeding in the last months at an interval of 14 days, each episodes lasting for 2-3 days. The last episode of bleeding 10 days back. Her UPT was positive on the day of admission. She had been married for 3 years back and had conceived spontaneously.

She had a spontaneous abortion at 6 week amenorrhea 1.5 years back and another 1st trimester spontaneous abortion 8 months back in which check curettage was done. Her past history and family history was unremarkable.

On examination she was distressed and pale. Her pulse rate was 110/ min and BP was 106/68 mmHg.

PA- revealed marked tenderness guarding and rigidity. Uterus was not palpable.

PV- revealed marked tenderness in the right fornix and cervical motion tenderness, uterus size could not be assessed due to tenderness.
Her HB was 8.8 gm/dl and blood group was O+ ve. USG could not be done as the patients was haemodynamically unstable. The decision for emergency laparotomy was taken due to high clinical suspicion of ruptured ectopic pregnancy. 2 unit of blood were arranged. Intra operative around 500 ml of blood was present in the peritoneal cavity. Both the fallopian tubes and ovaries and uterus were found normal.

After intensive search for the focus of ectopic, a small around 2 cm rent was found on the posterior side of right sided broad ligament which was bleeding and through which some tissue was protruding out.

The tissue was completely removed and sent for histopathological examination and haemostatic sutures were taken. Histopathological report confirmed the tissue as product of conception. Patient had uneventful recovery and was discharged on day6. She was doing well on follow up.

**DISCUSSION:**

Broad ligament pregnancy is a rare but life threatening condition. Material mortality is a high as 20%. This is similar study done by phupong V. Lertkhachonsuk R. Triratanachat S. Sueblinvong T. Pregnancy in the broad ligament. It is either due to primary implantation of the zygote on the broad ligament or followed by secondary implantation from the fallopian tube, ovary or other peritoneal surface. Similar study done by Sharma S. Pathak N. Goraya SPS. Mohan P. Broad ligament ectopic pregnancy. The incidence of ectopic pregnancy 0.91%. This is in agreement with most of study from developing countries where incidence 0.56-1.5%.

In this case primary focus of ectopic pregnancy could not be found elsewhere except the broadligament.

**RISK FACTOR:**

1. A history of secondary infertility.
2. Use of assisted reproductive technologies
3. Pelvic inflammatory disease
4. Use of intra uterine devices
5. Use of progesterone only pills
6. A previous history of ectopic pregnancy
7. Endometriosis
There was no apparent risk factor in this case. The clinical presentation in broad ligament ectopic pregnancy is highly variable and can range from asymptomatic early ectopic pregnancy to rupture in labour at term. Dull lower abdominal pain during early gestation is common. This has been attributed to the placental separation, tearing of broad ligament and small peritoneal hemorrhage. Vaginal bleeding is also a common feature reported in up to half of the patients. In this case, patient presented with severe abdominal pain with guarding and rigidity and no vaginal bleeding, making the differential diagnosis towards rupture ectopic pregnancy was made.

**DIAGNOSIS:**

- Ultrasound is the investigation for diagnosis.
- S. beta HCG level >1000 mIU/ml
- MRI provides additional information for evaluating the extent of uterine and mesenteric
- The old saying “in a reproductive age group lady with atypical anemorrhoea, pain abdomen and bleeding, think of an ectopic pregnancy”, still hold good for diagnosis of ectopic.
- Broad ligament ectopic pregnancy difficult to diagnosis on imaging.

**MANAGEMENT:**

- The management is exploratory laparotomy. However, stable patients with early gestation can be considered for laparotomy removal for small broad ligament pregnancies
- Our patient immediately taken for laparotomy with exclusion of the mass and had uneventful recovery

**CONCLUSION:**

Broad ligament ectopic pregnancy is not only rare but also diagnostic challenge. High index of clinical suspension, early diagnosis and prompt surgery is the key to management.

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CASE REPORT

A CASE REPORT OF RECURRENT PVNS IN METATARSAL PHALANGEAL JOINT /PROXIMAL PHALANX TREATED BY AMPUTATION OF SECOND TOE

Vaishya Arun¹, Swami Mahendra², Kumar Ravi³

1. Senior Professor, Department of Orthopaedics, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
2. Resident, Department of Orthopaedics, Dr. S. N. Medical College, Jodhpur, Rajasthan, India
3. Senior Resident, Department of Orthopaedics, Dr. S. N. Medical College, Jodhpur, Rajasthan, India

Corresponding author: Dr. Mahendra Swami, Email ID: orthomswami@gmail.com

Abstract:
Pigmented villonodular synovitis is a benign, proliferative disorder of synovium it often affects the knee, and rarely affects the foot. In this case report a 41yr male presented with recurrent PVNS of second toe, presented with slowly growing swelling over dorsum of second toe. this patient had a recurrence of swelling after one and half year of synovectomy which was not followed by radiotherapy. Patient was non compliance to radiotherapy and unseparable growth from bone tendon and neuromuscular structures was excised with amputation of second toe and no recurrence till two year follow up's without radiotherapy recurrence can be prevented by amputation of involved toes in the foot.

KEYWORDS: Toe, PVNS, synovitis

INTRODUCTION

Pigmented villonodular synovitis is characterized by the slowly progressive, exuberant, benign proliferative process of synovial tissue and is usually mono articular. PVNS may affect the synovium of the joints, bur-sae, and tendon sheaths, and is most common in the hips, knees, and rare (2.5% cases) in small joints of foot and ankle. Granowitz et al. first classified PVNS into two distinct clinical forms, diffuse and localized (nodular) both form can occur in the foot and ankle. A nodular variant occurs in the extensor/flexor tendon sheath of digits, surgical treatment includes open /arthroscopically synovectomy, teno synovectomy, and amputation of involved toes which followed by Radiotherapy. PVNS is locally aggressive and tends to recur if incompletely excised.
CASE REPORT:

A 41 yr old male presented with an insidious gradual progressing painless soft tissue swelling over the dorsum of right fore foot of sixteen-year duration. He under went the excision 10 yr back and histologically reported as a case of PVNS, swelling was recurred in one and half yr. of initial surgery and increased progressively over the last 10 years to present size. On clinical examination 7x5 cm size spherical swelling over first to third toes and which extended up to the distal phalanx of second toe distally and in first and second web space proximally. The swelling was non tender ,non fluctuating ,non pulsatile, non compressible soft in consistency, overlying skin are moveable, movements of the second toe restricted, and forefoot movements are with in normal limit and his general condition was with in normal limit. All routine investigation were with in normal range ,X-ray of the right foot shows the soft tissue shadow overlying 2nd toe and no obvious bony lesion was seen(fig. 1), FNAC was performed and suggestive of PVNS. MRI findings were erosion of distal part of proximal phalanx of great toe with altered bone marrow signal intensity appearing hypo intense in T 1 weighted images hypo intense in T 2 weighted and fat suppression. large heterogeneous mass is seen in proximal part of second toe encircling proximal phalanx, flexor and extensor tendons and neurovascular bundle mass lesion measures 65x52x42 mm(fig.2).

The swelling was resected under spinal anesthesia through dorsolateral approach which exposes the MTP joint of second toe. There was grey Brown color growth over the metatarsal head to the proximal phalanx of 2nd toe the growth was un separable from extensor tendons, vessels and nerves of second toe therefor amputation of second toe performed. Histopathology came out with PVNS(fig.3). The post operative recovery was uneventful(fig.4), and he had been referred for radiotherapy but not taken, and after two year follow up no recurrence found(fig.5).
Figure 1 X-ray AP foot shows soft tissue shadow over second toe and first and second interphalangeal space.

Figure 2 Histopathology slide shows hemosiderin-laden cells.
Figure 3 MRI image coronal section shows heterogeneous soft tissue mass on second toe

Figure 4 Immediate post operative image of foot after stitch removal

Figure 5. Photograph at one year follow up of patient foot without recurrence.
DISCUSSION

PVNS is an aggressive disease and rare in foot and lack of superficial muscle layers assist in allowing spread to adjacent articular spaces complete excision is therefore difficult to achieve and patient compliance for radiotherapy needed to control recurrence. In our case study there was already synovectomy done but due to patient non compliance to radiotherapy recurrence was occurred so that surgical amputation of the toe is decided to prevent recurrence of PVNS.

Soft tissue tumors of foot often present with complaints of pain or difficulty in wearing footwear, our swelling was pain less with normal range foot movement. There was localized or nodular variety swelling of second toe. This patient had a recurrence of disease one and half year after the first surgical excision that surgery was not supplemented by Radiotherapy. MRI was done in this case to see the extent of disease complete excision was difficult to achieve as this was a recurrence of swelling with pressure effect on the bone we did an amputation of 2nd toe and we refer patient for Radiotherapy to prevent further recurrence.

There is paucity of literature on PVNS affecting second toe, John A. Raison et al. reported a case of second metatarsophalangeal joint PVNS\(^2\), Edward et al. diagnosed a case of PVNS of second interphalangeal joint by ultrasound with color Doppler\(^3\). A. Lunawat et al. reported case of PVNS in great toe\(^4\), also Wg Cdr P Kina reported pigmented villonodular synovitis in dorsal of foot involving second metatarsal and treated by synovectomy and radiotherapy role\(^5\). PVNS usually monoarticular but Zaho et al. reported a rare case of multifocal PVNS in a child affecting over 20 joints\(^6\). H Sharma et al. considered toe amputation for foot phalangeal PVNS\(^7\). M 1cc et al. documented the rare PVNS in the foot one case out of seven cases PVNS in second toe\(^8\), Rochwerger et al. reported an eight cases of PVNS in the foot and ankle, three cases affected toes and recurrence occurred in one toe and led to partial amputation\(^9\).

Our case report of PVNS involving the second MTP/IP joint is the rare case report in the literature and highlights the importance of considering PVNS as a D/D in adults presenting with swelling of the foot. The diagnosis of recurrence of PVNS is confirmed by clinical history, FNAC, MRI, and histopathology. In MRI shows joint effusion with dark signal the synovium and low signal intensity occur in T1 and T2 weighted due to paramagnetic effect of hemosiderin. In histopathology grossly mass is grey brown colored with rubbery consistency and microscopically villous storm and hemosiderin granules and lipids are prominent in macrophages with multinucleate giant cells present PVNS of toes treatment includes total synovectomy and adjuvant radiotherapy as surgical
method but patient compliance is an issue with radiotherapy then recurrence can be prevented by amputation of involved toes in the foot is the method of choice.

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Introduction: State the purpose and summarize the rationale for the study or observation. The introduction should describe in brief the background related to the study and also the need for carrying out the present study. Limit the number of references cited in the introduction to 4-6 only. Please include aims and objectives in introduction itself.

Methods: It should include and describe the following aspects (do not use the headings in the manuscript/article):

Ethics:

When reporting studies on human beings, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2013 (available at http://www.wma.net/en/30publications/10policies/b3/index.html). For prospective studies involving human participants, authors are expected to mention about approval of (regional/ national/ institutional or independent Ethics Committee or Review Board, obtaining informed consent from adult research participants and obtaining assent for children aged over 7 years participating in the trial. The age beyond which assent would be required could vary as per regional and/ or national guidelines. Ensure confidentiality of subjects by desisting from mentioning participants’ names, initials or hospital numbers, especially in illustrative material. When reporting experiments on animals, indicate whether the institution’s or a national research council’s guide for, or any national law on the care and use of laboratory animals was followed.

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Evidence for approval by a local Ethics Committee (for both human as well as animal studies) must be supplied by the authors on demand. Animal experimental procedures should be as humane as possible. The ethical standards of experiments must be in accordance with the guidelines provided by the CPCSEA and World Medical Association Declaration of Helsinki on Ethical Principles for Medical Research Involving Humans for studies involving experimental animals and human beings, respectively). The journal will not consider any paper which is ethically unacceptable. A statement on ethics committee permission and ethical practices must be included in all research articles under the 'Methods' section.

STUDY DESIGN:

The methods section should start out describing the nature of the study (randomized / blinded / prospective / retrospective, etc). Selection and Description of Participants: Describe your selection of the observational or experimental participants (patients or laboratory animals, including controls) clearly, including eligibility and exclusion criteria and a description of the source population. Technical information: Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods; provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.

Reports of randomized clinical trials should present information on all major study elements, including the protocol, assignment of interventions (methods of randomization, concealment of allocation to treatment groups), and the method of masking (blinding), based on the CONSORT Statement (http://www.consort-statement.org).

STATISTICS:

Start this section in a separate paragraph (without placing the heading “statistics”). Whenever possible quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). Authors should report losses to observation (such as dropouts from a clinical trial). When data are summarized in the Results section, specify the statistical methods used to analyze them. Avoid non-technical uses of technical terms in statistics, such as 'random' (which
implies a randomizing device), 'normal', 'significant', 'correlations', and 'sample'. Define statistical terms, abbreviations, and most symbols. Specify the computer software used with the version/year. Use upper italics (P 0.048). For all P values include the exact value and not less than 0.05 or 0.001. P values are not needed for demographics routinely and are mentioned where study involves directly a correlation of study parameter with the demographics. Mean differences in continuous variables, proportions in categorical variables and relative risks including odds ratios and hazard ratios should be accompanied by their confidence intervals. Statistics related to sample size calculation and power estimation should be provided as the last paragraph in the methods section.

RESULTS:

Present your results in a logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only important observations. Extra- or supplementary materials and technical detail can be placed in an appendix where it will be accessible but will not interrupt the flow of the text; alternatively, it can be published only in the electronic version of the journal. Restrict tables and figures to a total of 6 only (preferable to have most relevant tables and figures), needed to explain the argument of the paper and to assess its support. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables. The legends must be brief and relevant and the units of measurement must be clearly mentioned in tables and graphs, with the group names also mentioned in the same fashion as in the Methods section. While reporting results related to VAS score, it is better to categorize the score as mild (0-3), moderate (4-7) and severe (8-10) and analyse accordingly rather than reporting mean VAS scores in decimals (e.g., 3.45) because there is no such value as 3.45 (the VAS can either be 3 or 4). Similarly, while analyzing time, better to analyze in seconds or minutes (as applicable to a study) rather than as minutes or hours and then reporting the value in decimals (e.g., 3.7 min or 10.6 hours does not convey the meaning correctly; 60 seconds= one minute and 60 minutes= one hour, NOT 100 seconds and 100 minutes respectively).

DISCUSSION:

Include summary of key findings (primary outcome measures, secondary outcome measures, results as they relate to a prior hypothesis): Confounding variables, strengths and limitations of the study. Interpretation and implications in the context of the totality of evidence (is there a systematic review to refer to, if not, could one be reasonably done here and now?, what this study adds to the available evidence, any new possible mechanisms etc): Controversies raised by this study; and Future research
directions (for this particular research collaboration, underlying mechanisms, clinical research etc). Do not repeat in detail data or other material given in the Introduction or the Results section. In particular, contributors should avoid making statements on economic benefits and costs unless their manuscript includes economic data and analyses. Avoid claiming priority and alluding to work that has not been completed. New hypotheses may be stated if needed, however they should be clearly labelled as such. These articles generally can have 6-8 authors, with correct details of their contribution entered in the first page / cover page file.

**Review Articles:** (Total number of words including References should be less than 3000)

It is expected that these articles would be written by individuals who have done substantial work on the subject or are considered experts in the field and their contribution is solicited by the editorial board. A short summary of the work done by the contributor(s) in the field of review should accompany the manuscript. The manuscript should have an unstructured Abstract (250 words) representing an accurate summary of the article. The section titles would depend upon the topic reviewed. The journal expects the contributors to give post-publication updates on the subject of review. The update should be brief, covering the advances in the field after the publication of the article and should be sent as a letter to editor, as and when major development occurs in the field. The number of images / figures / tables /graphs are to be limited to 4-6 only. They may be merged side by side when a change is intended to be shown. The legends must be brief and relevant and the units of measurement must be clearly mentioned in tables and graphs.

**Case reports:** (Total number of words including References should be less than 1500)

New, interesting and rare cases can be reported. They should be unique, describing a great challenge and providing a learning point for the readers. Cases with clinical significance or implications will be given priority. These communications should have the following headings: Abstract (unstructured), Key-words, Introduction, Case report, Discussion, Conclusion, References, Tables and Legends in that order. Please note that case reports are low priority articles. The number of images / figures / tables /graphs are to be limited to 2 only. They may be merged side by side when a change is intended to be shown. The legends must be brief and relevant and the units of measurement must be clearly mentioned in tables and graphs.
Brief communications (Total number of words including References should be less than 1000)

The manuscript should have the following headings: Introduction, Case report (for Case reports) (Methods and Results for Clinical investigations). Discussion, Conclusion, References, Tables and Legends in that order. The number of images / figures / tables / graphs are to be limited to 2 only. They may be merged side by side when a change is intended to be shown. The legends must be brief and relevant and the units of measurement must be clearly mentioned in tables and graphs. Please note that brief communications do not need an abstract.

Letter to the Editor: (Total number of words including References should be less than 1500)

These should be short and decisive observations. They can also be related to articles previously published in the Journal or views expressed in the journal. They should not be preliminary observations that need a later paper for validation.

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The comments, addressed to the Editor, should include reference of the published article, should be concise with critical comments to the point, with references in support. Maximum number of word count allowed is 250 with not more than 4 references, the first reference being that of the article being commented upon.

Response to Comments: The author is allowed to present his case/response to the observations made by the reader, in concise, with upto 250 words, with not more than 4 references, the first reference being that of the comments and the second, of the article being commented upon.

Other: Editorial, Guest Editorial and Commentary are solicited by the editorial board.

REFERENCES

References should be numbered consecutively in the order in which they are first mentioned in the text (not in alphabetic order). Identify references in text, tables, and legends by Arabic numerals in square bracket after the punctuation marks. References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure. No references to be used in abstract and Conclusion/ Summary. Use the style of the examples below, which are based on the formats used by the NLM in Index Medicus. The titles of journals should be abbreviated according to the style used in Index Medicus. Use complete name of the journal for non-indexed journals. Avoid using abstracts as references. Information from
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The commonly cited types of references are shown here.

**Articles in Journals**


b. Standard journal article (for more than six authors): List the first six contributors followed by et al.


**Books and Other Monographs**


b. Editor(s), compiler(s) as author: Norman JI, Redfern SJ, editors. Mental health care for elderly people. New York: Churchill Livingstone; 1996.

Electronic Sources as reference

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- Tables should be self-explanatory and should not duplicate textual material.
- Tables with more than 10 columns and 25 rows should be avoided.
- Number tables, in Arabic numerals, consecutively in the order of their first citation in the text and supply a brief title for each. Place explanatory matter in footnotes, not in the heading.
- Explain in footnotes all non-standard abbreviations that are used in each table.
- Obtain permission for all fully borrowed, adapted, and modified tables and provide a credit line in the footnote.
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- The photographs and figures should be trimmed to remove all the unwanted areas.
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- Number of contributors restricted as per the instructions. If authors are more then a proper justification have been provided.
- Identity not revealed in paper except title page (e.g. name of the institute in Methods, citing previous study as 'our study', names on figure labels, name of institute in photographs, etc.)

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- Numerals at the beginning of the sentence spelt out
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- No repetition of data in tables and graphs and in text
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- Figures necessary and of good quality (colour)
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- Labels pasted on back of the photographs (no names written)
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- Patients' privacy maintained (if not permission taken)
- Credit note for borrowed figures/tables provided
- Write the full term for each abbreviation used in the table as a footnote
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<td>Six</td>
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<td>Response to comments</td>
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