Research Article

Fodder Machine Scalp Avulsion in Females: An Unintentional, Preventable Injury

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Introduction:Mortality and morbidity caused by agriculture related injuries are more common as compared to other occupational injuries. These preventable injuries are on a rise due to increased availability of high power equipment. This is a great concern in a country like Pakistan, where up to 40% of taskforce is involved in agriculture related activities.

Objectives: The objective of this study is to see spectrum of scalp trauma due to agricultural injury.

Methodology: This retrospective study was carried out at department of plastic surgery, Quaid-e-Azam medical college, Bahawalpur. 43 patients were referred from neurosurgery, orthopedic surgery and general surgery wards, 5 females were directly presented to plastic surgery ward. All selected patients were divided into 3 groups according to severity of scalp injuries they received, and were managed accordingly. Patients were further evaluated on follow -up visits.

Results: A total of 48 patientswere included in the study of these five patients presented directly to plastic surgery OPD, whereas the remaining 43 were referred from other departments. In patients included in group A & B the average duration of stay was 60 days whereas in patients of group C this stay increased to 3 to 4 months. All the patients were successfully treated and discharged home after completing their sessions.

Conclusion: Scalp injuries in our rural settings could be avoided by improving community education. Such injuries are economic burden not only on poor patients but also on healthcare system.

Received |31-01-2022: Accepted |27-02-2022

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Keywords | scalp injuries, community education, law making.

Introduction

In Pakistan almost 40% of workforce is involved in agriculture related activities. Estimated mortality caused by agricultural injuries is five times as compared to other occupational injuries.¹Such preventable injuries are rapidly increasing due to easy availability of high-power assisted motors without a formal education regarding their use, especially in rural population. Fodder cutter (tokka machine) is used commonly in our rural areas for cutting straw, hay and corn fodder into small digestible pieces for their livestock. When these power-assisted machines are used without proper education, they cause severe injuries that are preventable.²

Other factors that increase morbidity and mortality in patients with these injuries include poorly built

infrastructure, limited pre hospital and primary hospital care, underdeveloped transport system, and lack of triage activities in tertiary care hospital³. In our area of southern Punjab this public health issue is often neglected which leads to significant mortality and permanent disability of work force.

In this study we describe demographic features with mode and pattern of scalp injuries in female population caused by agricultural trauma and burden of these injuries on health care system and on families. We also tried to assess how these injuries affect a victim's life. As education of workforce is most neglected component in our area we have tried to come up with practical solutions to minimize these preventable injuries. This will, in turn, reduce the financial burden of such injuries on healthcare delivery system.

Methodology

Clinical setting

This retrospective study was carried out at Bahawal Victoria Hospital over a duration of 5 years from Januray 2016 to December 2020. All the female patients, of all age groups, who presented to plastic surgery department with scalp injury due to agricultural trauma were included in the study. Patients with concomitant serious injuries to other parts of the body (such as chest/abdominal wall or limbs) were excluded.

The catchment area of our hospital includes rural areas of all districts of Bahawalpur division and most of districts of Multan division. We took basic demographic information along with mechanism of injury. Moreover, information regarding previous treatment received in different referral departments were taken.

Based on the injury patterns, the patients were divided into3 groups A - total scalp avulsion from supraorbital ridge of frontal bone to nape of neck

B - partial scalp avulsion

C - exposed skull bone at the time of presentation

Results

A total of 48 patients with scalp avulsion injury were included in our study. Age range was 15 to 45 years, with the mean age being 20 years.

Out of 48 patients, 43 were injured by power-assisted fodder cutters, whereas 5 were injured by tube-well belts. The mechanism of injury was always that loose fitted clothes, dupattas or hair got tangled in unshielded rotating shaft of fodder machine, or belts of tube well machines.

Avulsion plane was sub-galeal in 32 patients, which is the plan of least resistance. In 16 patients, it was subperiosteal, exposing the scalp bone. The overall mean hospital stay was 4 months.

There were 18 patients in group A, having total scalp avulsion. 4 of these patients had concomitant ear avulsions; 14 patients in group B with partial scalp avulsion; and 16 in group C having exposed skull bone at presentation

Details of Operative procedures performed Group A:

⁴ patients reached within 6 hours of warm ischemia time. In these patients scalp replantation in emergency theatre was done after optimizing patient. In all patients replantation failed. The dead scalp skin was debrided after 48 hours and wound subsequently prepared by repeated saline soaked dressings and grafted once ready. Remaining 14 patients wound washed and saline soaked foam dressing was doneuntil wound was ready for grafting, and subsequently STSG was done. The mean hospital stay of this group was 45 to 60 days.

Graft uptake per session was70 to 90 percent with average loss of 10 percent.

Group B:

In 7 patients of group B where some part of bone was also exposed we performed transposition flap. In remaining 7 patients STSG was done.

Group C:

The remaining 16 patients of scalp avulsion in which scalp bone is exposed we did burr hole at 1st stage. Patient was then sent home with advice of wound dressing with heparin saline solution with constitution of 1;1000 on daily basis. Patients were advised to visit every 15 days to see granulation tissue formation. Once granulation tissue was formed effectively covering whole of scalp bone then we did skingrafting for wound coverage



Figure 1: patient with almost complete scalp avulsion injury.

a: wound partially covered with granulation, b: almost completely covered with granulation, c: 7 days after grafting, d: 1 month after grafting

At 3 month follow-up, 12 of these patients who received grafts on granulation tissue presented with unstable scars that disrupt on minor trauma resulting in ulcer formation. These ulcerations were treated conservatively with simple wound care.

Main long term complication of all these patients was scalp alopecia. Four patients who presented with concomitant ear avulsion presented with meatal stenosis as late complication. This stenosis was treated by opening and removing of scar tissue and application of skin graft with placement of stent for a long period of 3 months.

Discussion

The use of motor assisted devices is becoming more common in the agricultural world. These power-assisted devices not only decrease manual power but also shorten time required for performance of different agricultural tasks.

In Pakistan one third of agricultural workforce is provided by females who routinely use power assisted fodder cutter machines for preparation of food for the livestock. These females using these power-assisted devices are unfortunately uneducated. More over there is no designed system to educate end users of these machines.

Different studies assessing demography of agricultural injuries showed male dominance followed by female and children.⁴ but we assessed risk and morbidity of only female population in our rural area of southern Punjab. It is a cultural norm that more than one third of agricultural tasks are provided by females specially taking care of livestock.

Some studies of other countries showed distribution of such injuries in different parts of body, and stated that hand and upper extremities are most commonly involved by agricultural trauma⁵. There are very few studies in the literature about scalp trauma with agricultural injuries. According to those studies, scalp injury is a very rare injury in agricultural trauma. However, in our study, the incidence of scalp injury was about 10 to 12 cases per year. The main cause of this high incidence in our study is that the end users of these machines are commonly females in our rural area who are illiterate and they are not given education about safety measures of these power assisted devices. Secondly, traditional clothing of our rural area is loose-fitted clothes which they wear in everyday life as well as while handling these machines. Also there is a tradition in our rural areas that these females use paranda (long head ribbon) to braid their hair and sometimes these paranda or dupatta gets tangled in open shaft of machines. Entanglement in these high power machines causes high power traction injury leading to avulsion of scalp mostly in sub galial plane (which is more prone to avulsion). As these machines are not well designed and most moving parts are unshielded there are high chances of entanglement of parandas and dupattas. Studies conducted in Saskatchewan discussed briefly role of different safety measures that should be used to prevent these entanglement. ⁶⁻⁷We also noted that mild change in manufacturing of these machines decrease chances of such devastating injuries.⁸

We offered scalp replants in 4 of group A patients with total scalp avulsion. All of these failed within 24 hours. Main cause of these failures is that the people in our areas are not educated about how to properly transport the amputated parts. Moreover, even health care providers in rural health centers are also not educated for preservation of body parts for their better survival. Secondly, the poor infrastructure of health care delivery system delays proper and timely referral of these patients to save the golden time of ischemia.

Thirdly, the mechanism of injury is so cruel that high force avulsion trauma causes very extensive intimal damage in recipient vessels and evident ribbons sign that after few hours of patent successful anastomosis there developed thrombosis that leads to transplant failure within 48 hours. But studies conducted in china and India showed good results of replantation but these are case reports with 2 to 3 cases⁹⁻¹¹.

In-group B in 5 patients we immediately took graft from avulsed scalp and placed it over the defect. Hospital stay of these patients was very less ranging from 20 to 25 days.

Patients with exposed bones got very prolonged treatment where we performed burr hole at first stage then waited for 3 to 4 months and then did grafting in 3 to 4 stages.

While assessing the economic burden of these patients on their families and on health care delivery system we were shocked that these preventable injuries cause great burden. The prolonged hospital stay and multiple surgical procedures not only make these patients psychologically ill and depressed, it also collapses their home economy. It also create very large burden on health care delivery system.

We would like to stress that this neglected preventable injury should be considered important at government level. There should be strict check on proper ergonomics of these power assisted machines with proper coverage of their shafts. By using emergency brakes, flash sensor, and automatic switching devices, safety of these machines can be enhanced.

Government should structure a program by involving local health care providers to educate these illiterate

people regarding safety measures. Companies on social media and FM radio should design to educate these people. Logistics of proper dress wearing and head caps while operating these devices should be made and applied.

More over, development of proper infrastructure for quick and easy referral of these patients to respected health care providers will result in good outcome in minimal period of time.

Conclusion

Scalp avulsion injuries are very devastating for females of rural area, which causes great burden not only on families but also on whole of health care delivery system. There is a dire need of a better transportation and referral system to designated tertiary health-care facilities. Also creating awareness on prevention may lead to a lower incidence of such injuries

Conflict of Interest	None
Funding Source	None

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Editorial

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Creativity is integral to man's evolution for survival. From the idea of using chopsticks to pick up food to the masterpieces in a museum, creativity is inherent to man. Creativity is simply to let imaginations roam unfettered, to dwell on the hitherto unheard of and unthought of and to imagine the impossible as possible. The mind is a very powerful creation. If it believes in something with sufficient conviction for a sufficient period, it actually makes it happen. Nevertheless, what is allegedly embedded in our DNAs (1) needs a propitious milieu to foster and fester.

Plastic Surgery and creativity are analogous. Creativity, especially in plastic surgery does not require experience or tutelage. I've heard first year residents provide uncanny suggestions to improve on surgical results. An instant bond of admiration and mutual respect ensues, that nurtures further learning and creativity on both ends. Unfortunately, like creativity is innate to mankind, ego is notoriously immanent to surgeons. Snubbing attitudes and scathing remarks to residents who dare suggest a deviation or ask a "silly" question are not uncommon in our culture, embedding fear and vacillation as byproducts of training, like confounders in a scientific study. In reality, no question is silly, and no answer is stupid. We should avoid our primal urge to humiliate to feel powerful that evokes such ignominy and ignobility in a noble profession.

Sorrow begets creativity in poets not in surgeons. In surgeons it only begets stress that suppresses any burgeoning creative proclivities (2, 3). It cannot be denied that feedback and self-critique is vital for perpetuating ingenuity and to discourage complacence. However, it is almost always easy to tell the difference between healthy critique and irascible scorn from a mentor.Let us as Plastic Surgery consultants provide a stress free, friendly and healthy environment conducive to extracting Michelangelos and Picassos out of dilettantes.

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INSTRUCTIONS TO THE AUTHORS AND REVIEWERS OF THE MANUSCRIPTS

(Base upon Minimum Requirements for Writing and Editing of Manuscripts)

Introduction

The new Editorial Board of Pakistan Journal of Plastic Surgery during its meeting held on January, 2019 decided to follow the "Uniform requirements for manuscripts submitted to Biomedical Journals: writing & Editing for Biomedical Publications by International Committee of Medical Journal Editors. A brief account of minimum requirements is given below for assisting the authors, reviewers and editors, the full text can be read, (www.icmje.org). Moreover plagiarism policy of ICMJE, Higher Education Commission and PMDC will be observed. It is authors' responsibility to apprise them of plagiarism in any form including paraphrasing and self plagiarism. The Plagiarism Standing Committee of Pakistan Journal of Plastic surgery would deal with cases of plagiarism and comprise of staff members, and editors. Those claiming intellectual/ idea or data theft of an article must provide documentary proof in their claim otherwise their case will be sent for disciplinary action.

General Principles

1. Title Page

The title page should carry the following information:

- 1. The title of the article. Concise titles are easier to read than long, convoluted ones. Authors should include all information in the title that will make electronic retrieval of the article both sensitive and specific.
- 2. Authors' names and Title of the Program. The names and other relevant information should be on title page only to ensure blind peer review of research article.
- 3. The name of the department(s) and institution(s) to which the work should be attributed.
- 4. Disclaimers, if any.
- 5. Corresponding authors. The name, mailing address, telephone and fax numbers, and e-mail address of the author responsible for correspondence about the manuscript.
- 6. Source(s) of support in the form of grants, equipment, drugs, or all of these.
- 7. Word counts. A word count for the text only (excluding abstract, acknowledgments, figure legends, and references). A separate word count for the Abstract is also useful for the same reason.

- 8. The number of figures and tables.
- 9. Conflict of Interest Notification Page

2. Conflict of Interest Notification Page

To prevent the information on potential conflict of interest for authors from being overlooked or misplaced, it is necessary for that information to be part of the manuscript. It should therefore also be included on a separate page or pages immediately following the title page.

3. Abstract and Key Words

An abstract (requirements for length and structured format vary by journal) should follow the title page. The abstract should provide the context or background for the study and should state the study's purposes, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), and principal conclusions. It should emphasize new and important aspects of the study or observations.

Authors are requested to provide, and identify as such, 3 to 10 key words or short phrases that capture the main topics of the article. These will assist indexers in cross-indexing the article and may be published with the abstract. Terms from the Medical Subject Headings (MeSH) list of Index Medicus should be used.

4. Introduction

Provide a context or background for the study (i.e., the nature of the problem and its significance). State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question. Both the main and secondary objectives should be made clear, and any pre-specified subgroup analyses should be described. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

5. Material and Methods

The Methods section should include only information that was available at the time the plan or protocol for the study was written; all information obtained during the conduct of the study belongs in the Results section.

(a) 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. The guiding principle should be clarity about how and why a study was done in a particular way. When authors use variables such as race or ethnicity, they should define how they measured the variables and justify their relevance.

(b) 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 (see below); 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, includ-ing generic name(s), dose(s), and route(s) of administration. Also describe diagnostic or therapeutic procedures if part of the study design.

(c) Statistics

Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals). Define statistical terms, abbreviations, and most symbols. Specify the computer soft-ware used.

6. Results

Present your results in 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.

When data are summarized in the Results section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them. Restrict tables and figures to those 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.

7. Discussion

Emphasize the new and important aspects of the study and the conclusions that follow from them. Do not

repeat in detail data or other material given in the Introduction or the Results section. For experimental studies it is useful to begin the discussion by summarizing briefly the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other relevant studies, state the limitations of the study, and explore the implications of the findings for future research and for clinical practice.

Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted.

8. References

(a) General Considerations Related to References

Although references to review articles can be an efficient way of guiding readers to a body of literature, review articles do not always reflect original work accurately. Small numbers of references to key original papers will often serve.

Avoid using abstracts as references. References to papers accepted but not yet published should be designated as "in press" authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication. Informa-tion from manuscripts submitted but not accepted should be cited in the text as "unpublished observations" with written permission from the source.

Avoid citing a "personal communication" unless it provides essential information not available from a public source, in which case the name of the person and date of communication should be cited in parentheses in the text. For scientific articles, authors should obtain written permission and confirmation of accuracy from the source of a personal communication.

For articles published in journals indexed in MEDLINE, the Pakistan Journal of Plastic Surgery considers PubMed (http://www.pubmed.gov) the authoritative source for information about retractions.

(b) Reference Style and Format

The Uniform Requirements style is based largely on an ANSI standard style adapted by the National Library of Medicine (NLM) for its databases. For samples of reference citation formats, authors should consult National Library of Medicine web site. References should be numbered consecutively in the order in which they are first mentioned in the text. Identify references in text, tables, and legends by Arabic numerals in parentheses. The titles of journals should be abbreviated according to the style used in Index Medicus. Consult the list of Journals Indexed for MEDLINE, published annually as a separate publication by the National Library of Medicine.

9. Tables

Tables capture information concisely, and display it efficiently; they also provide information at any desired level of detail and precision. Including data in tables rather than text frequently makes it possible to reduce the length of the text.

Type or print each table with double spacing on a separate sheet of paper. Number tables consecutively in the order of their first citation in the text and supply a brief title for each. Do not use internal horizontal or vertical lines. Give each column a short or abbreviated heading. Authors should place explanatory matter in footnotes, not in the heading. Be sure that each table is cited in the text.

10. Illustrations (Figures)

Figures should be either professionally drawn and photo-graphed, or submitted as photographic quality digital prints. In addition to requiring a version of the figures suitable for printing, Pakistan Journal of Plastic Surgery ask authors for electronic files of figures in a format (e.g., JPEG or GIF) that will produce high quality images in the web version of the journal; authors should review the images.

For x-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens or photomicrographs, send sharp, glossy, black-andwhite or color photo-graphic prints, usually 127×173 mm (5 x 7 inches). Letters, numbers, and symbols on Figures should therefore be clear and even throughout, and of sufficient size that when reduced for publication each item will still be legible. Figures should be made as self-explanatory as possible, since many will be used directly in slide presentations. Titles and de-tailed explanations belong in the legends, however, not on the illustrations themselves.

Photomicrographs should have internal scale markers. Symbols, arrows, or letters used in photomicrographs should contrast with the background.

If photographs of people are used, either the subjects must not be identifiable or their pictures must be accompanied by written permission to use the photograph. When-ever possible permission for publication should be obtained.

Figures should be numbered consecutively according to the order in which they have been first cited in the text.

11. Legends for Illustrations (Figures)

Type or print out legends for illustrations using double spacing, starting on a separate page, with Arabic numerals cor-responding to the illustrations. When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend.

12. Units of Measurement

Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples.

Temperatures should be in degrees Celsius. Blood pressures should be in millimeters of mercury, unless other units are specifically required.

13. Abbreviations and Symbols

Use only standard abbreviations; the use of nonstandard abbreviations can be extremely confusing to readers. Avoid abbreviations in the title. The full term for which

14. Drug Name

Generic names should be used. When proprietary brands are used in research, include the brand name and the name of the manufacturer in parentheses after first mentioning of the generic name in the Methods section.

15. Guidelines for Authors and Reviewers

All material submitted for publication should be sent exclusively to the Pakistan Journal of Plastic Surgery. Work that has already been reported in a published paper or is described in a paper sent or accepted elsewhere for publication, should not be submitted. Multiple or duplicate submission of the same work to other journal should be avoided as this fall into the category of publication fraud and are liable for disciplinary consequences, including reporting to Pakistan Medical & Dental Council and Higher Education Commission. A complete report following publication of a preliminary report, usually in the form of an abstract, or a paper that has been presented at a scientific meeting, if not published in full in a proceedings or similar publication, may be submitted. Press reports of meetings will not be considered as breach of this rule, but additional data or copies of tables and illustrations should not amplify such reports. In case of doubt, a copy of the published material should be included with a

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The editors reserve the right to edit the accepted article to conform to the house-style of the Journal.

16. General archival and linguistic instructions

Authors should submit the manuscript typed in MS Word. Manuscripts should be written in English in British or American style/format (same style should be followed throughout the whole text), in past tense and third person form of address. Sentences should not start with a number or figure. Any illustrations or photographs should also be sent in duplicate. Components of manuscript should be in the following sequence: a title page (containing names of authors, their postal and Email addresses, fax and phone numbers, including mobile phone number of the corresponding author), abstract, key words, text, references, tables (each table, complete with title and footnotes) and legends for llustrations and photographs. Each component should begin on a new page. The manuscript should be typed in double spacing as a single column on A4 (8-1/2" x 11" or 21.5 cm x 28.0 cm), white bond paper with one inch (2.5)cm) margin on one side.

Sub-headings should not be used in any section of the script except in the abstract. In survey and other studies, comments in verbatim should not be stated from a participating group. Acknowledgements are only printed for financing of a study or for acknowledging a previous linked work.

From January 2016, all randomized trials should also provide a proof of being registered at the

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17. Material for Publication

The material submitted for publication may be in the form of an Original research (Randomized controlled trial - RCT, Meta-analysis of RCT, Quasi experimental study, Case Control study, Cohort study, Observational Study with statistical support etc), a Review Article, Commentary, a Case Report, Recent Advances, New techniques, Debates, Adverse Drug Reports, Current Practices, Clinical Practice Article, Short Article, KAP (Knowledge, Attitudes, Practices) study, An Audit Report, Evidence Based Report, Short Communication or a Letter to the Editor. Ideas and Innovations can be reported as changes made by the authors to an existing technique or development of a new technique or instrument. A mere description of a technique without any practical experience or innovation will be considered as an update and not an original article. Any study ending three years prior to date of submission is judged by Editorial Board for its suitability as many changes take place over the period of time, subject to area of the study. Studies more than three years old are not entertained. In exceptional cases, if Editorial Board is of the view that data is important, an extension of one year may be granted. Pakistan Journal of Plastic Surgery also does not accept multiple studies/multiple end publications gathered/derived from a single research project or data (wholly or in part) known as 'salami slices'.

Original articles should normally report original research of relevance to clinical medicine. The original paper should be of about 2000-2500 words excluding abstract and references. It should contain a structured abstract of about 250 words. Three to 10 keywords should be given for an original article as per MeSH (Medical Subject Headings). There should be no more than three tables or illustrations. The data should be supported with 20 to 25 references, which should include local as well as international references. Most of the references should be from last five years from the date of submission.

Clinical Practice Article is a category under which all simple observational case series are entertained. The length of such article should be around 1500 - 1600 words with 15 - 20 references. The rest of the format should be that of an original article. KAP studies, Audit reports, Current Practices, Survey reports and Short Articles are also written on the format of Clinical Practice Article. Evidence based reports must have at least 10 cases and word count of 1000 -1200 words with 10 - 12 references and not more than 2 tables or illustrations. It should contain a nonstructured abstract of about 150 words. Short communications should be of about 1000 - 1200 words, having a non-structured abstract of about 150 words with two tables or illustrations and not more than 10 references. Clinical case reports must be of academic and educational value and provide relevance of the disease being reported as unusual. Brief or negative research findings may appear in this section. The word count of case report should be 800 words with a minimum of 3 key words. It should have a non-structured abstract of about 100 - 150 words (case specific) with maximum of 5 - 6 references. Not more than 2 figures shall be accepted.

Review article should consist of critical overview/analysis of some relatively narrow topic providing background and the recent development with the reference of original literature. It should incorporate author's original work on the same subject. The length of the review article should be of 2500 to 3000 words with minimum of 40 and maximum of 60 references. It should have nonstructured abstract of 150 words with minimum 3 key words. An author can write a review article only if he/she has written a minimum of three original research articles and some case reports on the same topic.

Letters should normally not exceed 400 words, with not more than 5 references and be signed by all the authors-maximum 3 are allowed. Preference is given to those that take up points made in contributions published recently in the journal. Letters may be published with a response from the author of the article being discussed. Discussions beyond the initial letter and response will not be entertained for publication. Letters to the editor may be sent for peer review if they report a scientific data. Editorials are written upon invitation.

Between 3 to 10 key words should be given for all the category of manuscripts under the abstracts as per mesh [medical subject heading].

18. Thesis Based Article

Thesis based article should be re-written in accordance with the journal's instructions to the author guidelines.

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