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Various Committee

Forward Letter from Director TRIHMS

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It is with great pleasure and enthusiasm that I extend my warmest greetings to all members of the Tomo Riba Institute of Health and Medical Sciences (TRIHMS) family on the occasion of the launch of our inaugural publication, the TRIHMS Medical Journal (TMJ). This marks a significant milestone in our journey towards excellence. As a premier medical institute, research is not just a component of our mission—it is the very essence of our existence. We firmly believe that research is the cornerstone upon which progress in healthcare is built. It is through rigorous inquiry, exploration, and discovery that we advance medical knowledge, improve patient care, and ultimately enhance the well-being of our communities.

A journal is not merely a repository of research findings; it is the conduit through which knowledge is disseminated, shared, and critiqued by the global scientific community. It is the platform where ideas are exchanged, hypotheses are tested, and innovations are born. Therefore, the launch of the TRIHMS Medical Journal is not just a symbolic gesture—it is a crucial step in fulfilling our commitment to advancing medical science and serving humanity.

In the pursuit of excellence, it is imperative that we uphold the principles of originality and quality in every facet of our research endeavors. Whether the research is groundbreaking or modest in scope, whether it originates from the laboratory bench or the clinical bedside, we must strive for excellence in every endeavor. This journal will serve as a testament to our unwavering dedication to maintaining the highest standards of scholarly integrity and scientific rigor.

Furthermore, I am delighted to announce that the TRIHMS administration is fully committed to supporting the smooth publication of this journal. We understand the financial implications of such an endeavor and are prepared to allocate the necessary resources to ensure its success. Rest assured, your contributions will be valued, your efforts will be recognized, and your voices will be heard. As we embark on this journey together, I call upon every department within TRIHMS to actively participate and contribute to the success of this initiative. This journal will not only showcase our collective achievements but also serve as a benchmark to assess our individual and departmental contributions to the institute's overarching goals.

Initially, we plan to publish the TRIHMS Medical Journal biannually, with the intention of increasing the frequency of publication as we strive for greater visibility and recognition through indexing in prestigious databases. This is just the beginning of a promising endeavor, and I am confident that with your unwavering support and dedication, we will achieve unprecedented heights of excellence and impact in the field of medical research.

In closing, I extend my heartfelt gratitude to each and every one of you for your invaluable contributions, dedication, and commitment to advancing the frontiers of medical science. Together, let us chart a course towards a future where innovation thrives, knowledge flourishes, and healing knows no bounds.
Kudos to the Editors for their dedication, hard work, passion, and patience!

(Dr. Moji Jini)
Director
Tomo Riba Institute of Health and Medical Sciences (TRIHMS)
Naharlagun

Forward Letter from Dean and Principal TRIHMS

GOVERNMENT OF ARUNACHAL PRADESH
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No. Dean/TRIHMS/2024 Dated, Naharlagun the 22nd April, 2024.

Dear Faculty, Staff, and Students,

I am pleased to announce the launch of the inaugural edition of the TRIHMS Medical Journal (TMJ), a significant milestone in our institution's journey towards fostering a culture of research and academic excellence. This endeavor reflects our commitment to advancing knowledge, promoting innovation, and contributing to the broader scientific community.

Research plays a pivotal role in advancing medical science, enhancing patient care, and addressing the complex challenges facing healthcare systems worldwide. By engaging in research, we not only expand the frontiers of knowledge but also contribute to evidence-based practices, innovative treatments, and improved health outcomes for our patients.In the context of India, the importance of research cannot be overstated. While the country has made significant strides in various fields, including healthcare, there remains a pressing need to bolster research efforts and investment in scientific endeavors. The present budget allocated to research in India, particularly in the medical and healthcare sectors, falls short of the desired levels necessary to drive meaningful advancements and address the evolving healthcare needs of our population.The implications of inadequate research funding are manifold, ranging from limited access to cutting-edge treatments and technologies to hindered progress in tackling prevalent health challenges and emerging infectious diseases. Moreover, a robust research ecosystem is essential for nurturing talent, fostering innovation, and positioning India as a global leader in medical research and healthcare innovation.

As stakeholders in the healthcare sector, it is incumbent upon us to advocate for increased investment in research, advocate for policies supportive of scientific inquiry, and foster a conducive environment for conducting high-quality research within our institutions. The TMJ serves as a testament to our commitment to promoting research excellence and nurturing a vibrant research culture within our institution.

I encourage all faculty members, researchers, and students to actively contribute to the journal by submitting their original research articles, case reports, and reviews. Let us leverage this platform to showcase the wealth of talent and expertise within our institution and make meaningful contributions to the advancement of medical science and patient care.

Congratulations to the editorial team and all contributors on the successful launch of the institute's own scientificjournal. May it serve as a beacon of knowledge and inspiration for generations to come.

With best regards,

26-04-24

(Prof. Dr. Shyamal Kumar Bhattacharya)
Dean and Principal, TRIHMS
Naharlagun, Arunachal Pradesh

Letter from Editors



Dear Esteemed Colleagues,

It gives us immense pleasure to announce the inaugural issue of the TRIHMS Medical Journal (TMJ). As editors, we extend our warmest greetings and invite each one of you to actively participate in this exciting journey of scholarly exploration and dissemination. Throughout history and till date, from the discovery of antibiotics to the development of the COVID-19 vaccine, research forms the cornerstone of progress in the field of healthcare, propelled by the relentless pursuit of knowledge, playing a pivotal role in underscoring the critical need for scientific inquiry and innovation in transforming healthcare and patient outcomes. This collective effort has demonstrated the power of research to address complex challenges and save lives. As members of the healthcare community, each of us has a unique perspective and expertise to contribute to the body of knowledge in our respective fields. By engaging in research, we not only enhance our understanding of diseases and treatments but also drive innovation, improve clinical practices, and ultimately, enhance patient care.

We extend our heartfelt gratitude to the faculty members who have already contributed to the inaugural issue of our journal. Your support and commitment are instrumental in laying the foundation for our journal's success. Moving forward, we encourage all faculty members, healthcare professionals, and students of TRIHMS to share their research findings, insights, and experiences with our journal.

We envision the TRIHMS Medical Journal as a platform for collaboration, learning, and growth. With your active involvement and contributions, we aim to publish biannual issues that showcase the wealth of knowledge and expertise within our institute. Together, we can overcome obstacles, foster a culture of research excellence, and gradually seek indexing to reach a wider audience and make a lasting impact in the field of healthcare.

We would like to express our sincere appreciation to the Director for his unwavering support and guidance. His vision and leadership have been the guiding force behind the establishment of our journal. We also extend our gratitude to the Dean and members of the Scientific Committee for their invaluable contributions and dedication to advancing research initiatives at TRIHMS.

In conclusion, let us come together as a community to celebrate the spirit of inquiry, innovation, and collaboration. Together, we can make a meaningful difference in the lives of our patients and contribute to the advancement of healthcare for generations to come. Thank you for your attention and participation.

With hope and pride,
TMJ Editorial Team

Dr. Ramapati Sanyal | Dr. Noyomi Saring | Dr. Amrita Sarkar

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Section A: Original Articles

Spectrum of Clinico-Epidemiological Profile of Scrub Typhus in A Tertiary Care Centre of North-East India.

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How to Cite: Umpo M, Kamki Y, Banik A, Lundup C and Dodum K. Spectrum of Clinico Epidemiological Profile of Scrub Typhus in A Tertiary Care Centre of North-East India. The TRIHMS Medical Journal. 2024; 1(1): 2 – 7.

ABSTRACT:

Introduction: Inspite of growing awareness scrub typhus remain a serious public health problem in Asia-Pacific area. It causes illness in one million people each year. In India, it is uncertain how widespread & burdensome scrub typhus is. It is difficult to differentiate from other acute febrile illness due to common symptomatology. Mizoram has a steep rise in scrub typhus & other rickettsial infection. Aizawl being worst affected with higher odds of deaths. Arunachal Pradesh also meet with many cases in previous years. Purpose of the study is to see wide spectrum of clinico-demographic profile of scrub typhus by using IgM ELISA. **Material & Methods:** A retrospective observational study was done in serology lab of TRIHMS, since January 2021 to December 2023.Total of 67 IgM ELISA confirmed cases were spotted. Their clinico-demographic profile was assessed and analyzed statistically. **Results:** Among 604 suspected cases, 67 were scrub typhus positive. Proportion of positive cases in 2021, 2022, 2023 till August were 11.12%,10.43%,13% respectively. Male: Female ratio is 6:4. It is common (38.46%) in 21-30 years of age group. Clinically manifests as fever (55.38%) followed by headache (9.2%). Most patients belong to Itanagar capital region (36.92%) & Papumpare (12.3%) district. Conclusion: Study showed an immense rise in scrub typhus. Adult (21-30yrs), males of Itanagar Capital Region (ICR) suffering from fever are at high risk.

Key term: Scrub typhus, Orientia Tsutsugamushi, Mites.

Introduction:

Scrub typhus has recently re-emerged as major public health concern in Asian-Pacific region and a leading cause of acute undifferentiated febrile illness. A bacterial zoonosis caused by ***Orientia Tsutsugamushi,*** *an* arthropod-borne rod shaped gram-negative obligately intracellular bacilli. The bacterium is ~0.5

μm wide, 1.2–3.0 μm long. Pathogen is transmitted to humans by bite of infected larval stage trombiculid mites, *Leptotrombidium* spp., commonly called chiggers. The bacterium is maintained in trombiculid mites through transovarial and transstadial transmission. Geographic distribution is due to distribution of its vector and reservoir[1]. Scrub typhus is usually endemic in "tsutsugamushi triangle", a region covering more than 8 million km^2, from Russian Far East in north, to Pakistan in west, Australia in south, and Japan in east[2,3]. Few cases reported in Central Asia and Middle East. It is a nationally notifiable disease in Bhutan, China, Japan, South Korea, Thailand, and Taiwan. Globalization and travelling contributes to exportation of infected persons to non-endemic areas[4]. It threatens one billion people globally and causes illness in one million people each year[5].

In India it was a major cause of fever among military personnel along the Assam-India-Myanmar (formerly Burma) border. Widespread use of insecticides, empiric treatment of febrile illness, changes in lifestyle contributes to subsequent decrease in incidence. It is still under-diagnosed disease in India as many cases remain unreported[6,7]. There were cases reported from Maharashtra, Tamil Nadu, Karnataka, Kerala, Himachal Pradesh, Jammu and Kashmir, Uttaranchal, Rajasthan, West Bengal, Bihar, Meghalaya, and Nagaland. In North-east, the case fatality rate was 2.3% as per 2013 - 14, sero-surveillance data of Regional Medical Research Centre (RMRC), Dibrugarh[8].

Outdoor workers, especially field workers (rice fields) in rural areas, have a higher risk of acquiring the disease[9]. May is usually the start of the scrub typhus season, and June-July are the peak months. The pattern correlates with the weather and life cycle of mites[10]. Usually exhibit non-specific flu-like symptoms such as fever, headache, rash, myalgia, cough, generalized lymphadenopathy, nausea, vomiting, abdominal pain, and painless eschar at the site of mite's bite. Fever being the common symptom. Eschar is single most useful diagnostic clue in some cases[11,12]. Scrub typhus is grossly undiagnosed in India due to its nonspecific clinical presentation, limited awareness, and low index of suspicion among clinicians and lack of diagnostic facilities. Severity varies from subclinical illness to severe illness with multiple organ system involvement.

The goal of this retrospective study is to provide a detail panel of clinical & epidemiological aspect of disease based on large patient population in a tertiary care center of North-east India.

Methodology:

A retrospective observational cross-sectional study was done in serology lab of TRIHMS, since January 2021 to December 2023. Patients of all age groups attending outpatient or inpatient department of TRIHMS, suspecting scrub typhus were included in study. These were patients having fever for a week or more, associated with headache, joint pain, bodyache, rashes, eschar, and for whom diagnosis has not been established despite one week of in-patient investigations (blood / urine and sputum culture) for common bacteria, serology, and complete blood count [CBC]. Their serum sample were collected and put for IgM ELISA for scrub typhus. Test was done as per manufacturer's protocol. Results were interpreted from OD (Optical Density) value. OD value of various positive samples is given in Table 1.

Positive samples were isolated. Their OD values were put on an X-L sheet and were assessed for commonest range in positive samples. Patient positive for scrub typhus were assessed for their clinical & demographic profiles. The particulars and clinical manifestations of all the positive cases were put on an X-L sheet & analyzed statistically.

Results:

Among 604 suspected cases, 67 were scrub typhus positive. Proportion of positive cases in 2021, 2022, 2023 till December were 11.12%, 10.43%, 13% respectively. Serum samples were tested in IgM ELISA for scrub typhus. OD value of positive samples was analysed statistically. Most of the positive samples (around 59.7%) were of OD value of range 0.5 to 2.0. followed by of range 2.0-3.0, i.e., around 28.35%. Study showed female preponderance with male: female ratio is 4:6.

Table 1: Showing OD Values

Reactive samples	OD Values	Reactive samples	OD Values	Reactive samples	OD Values	Reactive samples	OD Values
R1	0.972	R6	1.606	R11	1.836	R16	0.521
R2	2.35	R7	2.378	R12	2.02	R17	2.301
R3	1.028	R8	2.049	R13	3.127	R18	0.45
R4	1.61	R9	0.493	R14	3.125	R19	0.606
R5	2.946	R10	2.059	R15	2.056	R20	0.63

Table 2: OD Value

OD Value	Frequency	Proportion
<0.500	6	8.96%
0.5-1.0	20	29.85%
1.0-2.0	20	29.85%
2.0-3.0	19	28.35%
>3.0	2	2.98%

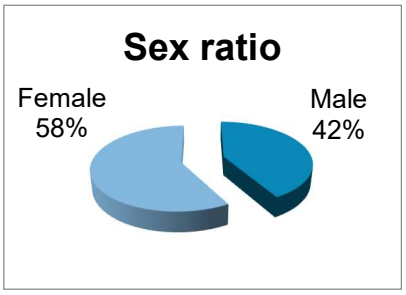
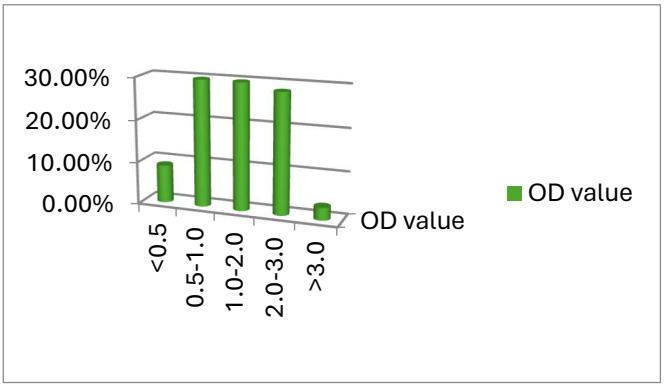


Figure 1: Female: Male ratio.



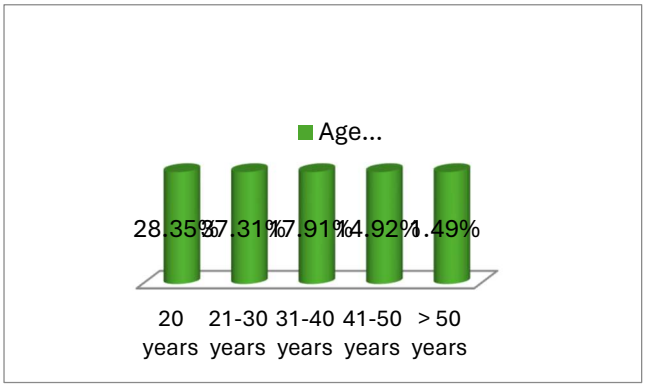


Figure 2: Showing OD value distribution

It is common (37.31%) in 21-30 year of age group followed by <20 years (28.35%), 31 - 40 years (17.91%), 41-50 years (14.92%) and >50 years 1.49% (shown in figure 1).

Clinically manifests as fever in 62.68% cases, headache in 10.45% cases, joint pain in 7.46% cases, eschar & body ache in 5.97% cases each, loose stool in 2.98% cases and wound, chest pain, low platelet in 1.49% cases each. Most patients belong to Itanagar capital region (73.13%) & Papumpare (14.92%) district.

Table 3: Showing different clinical manifestations (n=67)

Clinical manifestations	Frequency	Proportion
Fever	42	62.68%
Fever with headache	7	10.45%
Fever with joint pain	5	7.46%
Fever with bodyache	4	5.97%
Eschar	4	5.97%
Loose stool	2	2.98%
Wound	1	1.49%
Chest pain	1	1.49%
Low platelet	1	1.49%

Table 4: Showing Geographical distribution (n=67)

Regional distribution	Frequency	Proportion
Lower Subansiri	49	73.13%
Papumpare	12	17.91%
East Siang	3	4.47%
West Siang	1	1.49%
Anjaw	1	1.49%
Changlang	1	1.49%

DISCUSSION:

Scrub typhus is emerging as a potential health threat due to the poor health care, limited diagnostic facility and epidemiological trend of disease. Fever with chills, rashes and non-specific symptoms like headache, myalgia, sweating, vomiting are common clinical features. This coincides with our study. In this study we confirmed scrub typhus by coupling clinical features, epidemiological profile, and IgM ELISA interpretation. Around 59.7% of cases have OD value 0.5-2.0. Recently, several reports of scrub typhus from various parts of India have been published[13,17]. Most cases were diagnosed during the rainy months of June to November. Abundant vegetation, increased occupational exposure due to concurrent harvesting season, leading to more people in fields and for longer periods of day in rainy season explicit this. Most detected patients here are female which is like other part of the country18. Young adults (20–40 years) were the most affected group, which is due to the increased time spent outdoors[19]. This study also discovers the same, 21-30 years being the commonest age group. In a systematic review of burden of scrub typhus in India by Devasagayam et al., some of common presenting symptoms of confirmed cases in descending order were fever (34.7%), eschar (22.1%), headache (18.2%), nausea/vomiting (17.1%), abdominal pain (10.5%), breathlessness (10.4%), cough (10.4%), jaundice (5.6%), and seizure (2.7%). Patients mainly presented with fever (62.68%), sometime associated with headache (10.45%), joint pain (7.46%), body ache (5.97%). Though eschar is the most prominent feature of scrub typhus, here we got eschar in 5.97% cases. Most of the cases were reported from Lower Subansiri District.

Conclusion:

Scrub typhus is a common acute febrile illness in India causing severe morbidity and mortality now a days. Delayed diagnosis and treatment results in severe complications like ARDS, septic shock, multi organ failure and death. Availability, cost, time, and sensitivity of lab testing of scrub typhus are major problems in rural areas. Disease burden is inaccessible due to lots of unreported cases. Study showed an immense rise in scrub typhus in Arunachal Pradesh. Adult (21-30yrs), males of Itanagar Capital Region (ICR) suffering from fever are at high risk. We hope this study will make physician aware of this entity which will emphasize the need for high degree of clinical suspicion for early diagnosis and prompt treatment to reduce complication and mortality.

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Section B: Scientific Review Articles

Modernizing Medical Libraries: Strategies for Enhancing Management and Upliftment with Innovative Technologies

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Abstract:

Medical libraries are crucial in supporting research, education, and clinical practice in the healthcare sector. However, with the rapid advancement of technology and changing information needs, traditional library management practices are no longer sufficient. This review article explores strategies for modernizing medical libraries and enhancing their relevance in the digital age. Drawing on current literature and best practices, the article discusses the adoption of modern technologies, such as digital libraries, integrated library systems, electronic resources, and data management tools, to improve library services, facilitate access to information, and promote lifelong learning among healthcare professionals.

Keywords: Medical libraries, Modernization, Technology, Digital libraries, Information Management

Introduction: Medical libraries serve as vital resources for healthcare professionals, students, researchers, and patients, providing access to information essential for evidence-based practice and continuous learning. However, traditional library models face challenges in meeting users' evolving needs in today's digital era. To remain relevant and effective, medical libraries must embrace modern technologies and innovative approaches to information management. This review explores the strategies for modernizing medical libraries, focusing on adopting digital tools and technologies to enhance library services, streamline operations, and uplift the overall user experience.

Modernizing Library Infrastructure: One of the key steps in modernizing medical libraries is upgrading their infrastructure to support digital initiatives effectively. This involves implementing integrated library systems (ILS) or library management software to automate routine tasks such as cataloguing, circulation, and inventory management[1]. Additionally, libraries can leverage cloud-based solutions for storage and access to digital collections, enabling users to access resources remotely from any device. Adopting open-source platforms and standards-compliant protocols facilitates interoperability and integration with other institutional systems, enhancing efficiency and collaboration.

Enhancing Access to Electronic Resources: Electronic resources, including e-books, journals, databases, and multimedia content, are invaluable assets for medical libraries. Subscribing to electronic resources allows libraries to offer a diverse range of materials to users while minimizing physical space constraints. Implementing federated search tools and discovery platforms enables users to search across multiple databases simultaneously, facilitating efficient information retrieval. Moreover, libraries can collaborate with publishers and consortia to negotiate favorable licensing agreements and access terms, ensuring cost-effective access to high-quality content.[2]

Promoting Information Literacy and Lifelong Learning: Information literacy is essential for healthcare professionals to effectively navigate the vast amount of available information and critically evaluate its relevance and credibility. Medical libraries are pivotal in promoting information literacy through user education programs, workshops, and tutorials.[3] Integrating information literacy instruction into the curriculum equips students and faculty with essential research skills and enhances their ability to access and utilize library resources effectively. Furthermore, offering continuing education opportunities and professional development resources supports lifelong learning among healthcare professionals, ensuring that they stay abreast of the latest advancements in their field.

Data Management and Research Support Services: With the growing emphasis on data-driven healthcare and evidence-based practice, medical libraries are increasingly providing support for data management and research activities. Establishing data repositories and offering data management planning services help researchers organize, store, and share their data in compliance with institutional and funder requirements.[4] Moreover, providing access to specialized research tools, statistical software, and consultation services enhances the research capabilities of faculty and students, fostering a culture of innovation and inquiry within the institution.

Conclusion: In conclusion, modernizing medical libraries with innovative technologies is essential for ensuring their continued relevance and effectiveness in supporting healthcare education, research, and practice. By embracing digital tools and adopting best practices in information management, libraries can enhance access to resources, promote information literacy, and provide valuable support for research and data management activities. Moving forward, ongoing investment in technology infrastructure, user education, and collaboration with stakeholders will be

critical for advancing the mission of medical libraries in the digital age.

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A Review on Legalization of Assisted Reproductive Technology.

Prof. Chaitali Datta Ray

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Introduction: The Assisted Reproductive Technology (Regulation) Act, 2021 (December 2021) and subsequently The Assisted Reproductive Technology (Regulation) Rules, 2022 (7th June, 2022) and Assisted Reproductive Technology (Regulation) Amendment Rules, 2022 (10th October, 2022) have ushered in a new era in Indian healthcare. The hitherto unregulated sector of ART has come under the purview of regulatory bodies, had its basic terminology legally defined and specific criteria have been set for both those imparting and those wishing to avail of these services.

Some Specified Definitions of Interest to the Generalist

Assisted Reproductive Technology (ART): all techniques that attempt to obtain a pregnancy by *handling the sperm or the oocyte outside the human body* and transferring the gamete or the embryo into the reproductive system of a woman.

Assisted Reproductive Technology Bank (ART Banks): an organization which shall be responsible for collection of gametes, storage of gametes and embryos and supply of gametes to the assisted reproductive technology clinics after proper registration of the doner.

Assisted Reproductive Technology Clinic (ART Clinic): means any premises equipped with requisite facilities and medical practitioners registered with the National Medical Commission for carrying out the procedures related to the assisted reproductive technology.

Level 1 ART Clinics: Facilities with preliminary investigation where Intrauterine insemination (IUI) as a treatment procedure can be carried out.

Level 2 ART Clinics: This includes facilities where procedures, or as the case may be, techniques, that attempt to obtain a pregnancy shall be carried out by any or all of the following, namely:

a) surgical retrieval of gametes
b) handling oocyte outside the body
c) use sperms for fertilization of oocytes.
d) transfer embryo into reproductive system of woman.
e) storage of gametes or embryos or perform any procedure involving gametes or embryos and undertake research.

Child: any individual born through the use of the assisted reproductive technology.

Commissioning Couple: An *infertile married couple* who approach an assisted

reproductive technology clinic or assisted reproductive technology bank for obtaining the services authorized of the said clinic or bank.

Cryo-Preserve: The freezing and storing of gametes, zygotes, embryo, ovarian or testicular tissue.

Regulatory Bodies formed as Prescribed by The Act:

1. THE NATIONAL ASSISTED REPRODUCTIVE TECHNOLOGY AND SURROGACY BOARD: Formed to advise Central Government on policy matters, monitor implementation of the Act, set minimum standards of physical infrastructure, laboratory equipment and expert manpower to be employed, supervise functioning of the National Registry and liaison with STATE BOARDS.

2. NATIONAL ASSISTED REPRODUCTIVE TECHNOLOGY AND SURROGACY REGISTRY: Acts as a central database through which details of all clinics and banks, services and outcome of these services is obtained regularly. This data may be utilized for making policies and help in identifying new research areas.

3. THE APPROPRIATE ASSISTED REPRODUCTIVE TECHNOLOGY AND SURROGACY AUTHORITY: The appropriate authority grants, suspends or cancels registration of a clinic or bank, enforces standards to be fulfilled, investigates complaints, and takes legal action as per provisions of this Act. It also recommends to the National Board and State Boards modifications required in the rules and regulations in accordance with changes in technology or social conditions.

Procedure of Registration of Clinics

Clinics require to apply online through the National ART portal and then to their respective State Appropriate Authorities along with the necessary fees. The certificate of registration is valid for five years and needs to be displayed at a conspicuous place. In cases of rejection, appeal may be made to the concerned Appellate Authority.

Fees prescribed *(Assisted Reproductive Technology (Regulation) Rules, 2022)***:**

i. Rupees 50,000 for Level 1 ART clinic;
ii. Rupees 2,00,000 for Level 2 ART clinic;
iii. Rupees 50,000 for ART bank:

Duties of Art Clinics and Banks:

A. Ensure that commissioning couple, woman and donors of gametes are eligible.

   ELIGIBILITY CRITERIA:

   - For ART:
     i. Woman above twenty-one years and below fifty years
     ii. Man above twenty-one years and below fifty-five years
     iii. Married couple must also be infertile i.e. unable to conceive after one year of unprotected coitus or suffer from any other proven medical condition which prevents conception.
   - FOR DONORS:
     i. Semen from males between twenty-one years and fifty-five years

ii. Oocytes from females between twenty-three years and thirty-five years
iii. A bank must not supply gamete of a single donor to more than one commissioning party (i.e. couples or single women seeking services).

B. Other duties and conditions for offering services:
   i. ART procedure must be conducted only with written informed consent.
   ii. Provide professional counseling to commissioning couple/ woman about implications, chances of success, advantages, disadvantages, risks and cost.
   iii. Make commissioning couple/ woman, aware of the rights of a child born through ART, ensure that all information be kept confidential and not be disclosed to anyone except database maintained by National Registry, in a medical emergency at the request of commissioning couple or by an order of a court of competent jurisdiction.

Rights of the Child Born Through ART:

1. The child born shall be deemed to be a biological child of commissioning couple and entitled to all rights and privileges available to a natural child from them.
2. A donor shall relinquish all parental rights over the child/children which maybe born from his or her gamete.

Regulation while Using Human Gametes and Embryos:

1. Not more than three oocytes or embryos maybe placed in the uterus of a woman during the treatment cycle.
2. A woman shall not be treated with gametes or embryos derived from more than one man/woman during anyone treatment cycle, semen from two individuals shall never be mixed, embryos shall not be split and used for twinning, collection of gametes posthumously shall be done only if prior consent of the commissioning couple is available and ovum that are derived from a fetus shall not be used.
3. Sale or transfer of gametes/zygotes/embryos within or outside India is prohibited except for transfer of own gametes/embryos for personal use with permission of National Board.
4. Use of human gametes/embryos or their transfer to any country outside India for research is prohibited.
5. Transfer of human embryo into a male person/animal, selling of human embryo/gamete for purpose of research and import of human embryos/gametes are prohibited.
6. Ensure all unused gametes/embryos are preserved for use on the same recipient. Ensure that pre-implantation genetic testing is used to screen human embryos for known preexisting heritable or genetic diseases and when medically indicated and not for sex selection for non-medical reasons or selection of particular traits due to personal preferences of prospective parents, subject to provisions of Pre-conception and Pre-natal Diagnostic Techniques (Prohibition of Sex Selection) Act, 1994

Regulation Regarding Donor Gametes:

1. A bank shall obtain all necessary information in respect of sperm/oocyte donor, including name, Aadhar number and address and undertake in writing about the confidentiality of such information.
2. MEDICAL EXAMINATION OF DONOR: The sperm/oocyte donor shall be tested for Human immunodeficiency virus, types 1 and 2, Hepatitis B virus, Hepatitis C virus and Treponema pallidum through VDRL.
3. A bank shall not supply the sperm/oocyte of a single donor to more than one commissioning couple.
4. An oocyte donor shall donate oocytes only once in her life and not more than seven oocytes shall be retrieved from the donor.
5. The gamete of a donor or embryo shall be stored for ten years and at the end of such period such gamete/embryo shall be allowed to perish or be donated to research organizations registered under this Act with the consent of commissioning couple/ individual.
6. Records to be maintained of all donors (sperm and oocyte) screened, donor oocytes /sperm /embryos used or unused, technique of their use and online information submitted monthly about progress of commissioning couple/woman to National Registry.

Insurance Coverage/Guarantee for Oocyte Donor:

1. Commissioning couple or woman will purchase general health insurance coverage in favor of oocyte donor for a period of 12 months from an insurance company recognized by IRDA for an amount which is sufficient enough to cover all expenses for all complications arising due to oocyte retrieval.
2. Couple shall sign an affidavit to be sworn before Metropolitan Magistrate or Judicial Magistrate of first class or Executive Magistrate or Notary Public giving guarantee of compensation for specified loss, damage, complication, or death of oocyte donor during the process of oocyte retrieval.

Cryo Preserving of Gametes & Embryos:

1. Clinics/banks shall not cryo-preserve any human embryos/gamete, without consent and specific instructions from all parties regarding death or incapacity.
2. Any of the commissioning couple may withdraw his/her consent any time before embryos or gametes are transferred to woman's uterus.
3. Cryopreservation of oocytes/sperms for onco-fertility patients undergoing treatment for longer than ten years with permission from National Board.

Prescribed Forms

Specific forms have been made available for Registration of clinics and banks, appeals, complaints, consent of the couple or woman, for IUI with husband's/ Donor semen, for freezing of gametes/embryos, for oocyte retrieval and for sperm/oocyte donor and to record donor details.

Offences And Penalties

Contravention of clauses of the Act may lead to a fine not be less than five lakh rupees but may extend to ten lakh rupees for first offence and subsequently imprisonment is not less than three years but may extend to eight years and with

fine which shall not be less than ten lakh rupees but may extend to twenty lakh rupees.

As we all know, Assisted Reproductive Technology is a relatively new branch of health care first appearing in 1978, and since then forging ahead with scientists constantly refining and discovering new techniques. This Act, it's Rules, Regulations and Amendments, has attempted to bring a semblance of structure and uniformity to this specialty, although there are many areas which will require further clarification and modification to delineate and harmonize the fine line where ethics and science may appear to clash.

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Section C: Case Reports

Simultaneous Bilateral Spontaneous Pneumothorax in a young Adult: A Case Report.

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Introduction

Simultaneous bilateral spontaneous pneumothorax is a very rare condition, accounting for ~1% of all spontaneous pneumothoraxes[1]. Most of the reported cases are associated with underlying lung diseases. We herein report a rare case of a young adult with simultaneous bilateral spontaneous pneumothorax in a young adult with past history of Pulmonary Tuberculosis.

Case Report

A 30-year-old man was admitted to the Emergency Room complaining of chest pain and breathlessness of acute onset. The patient was afebrile, mildly tachycardic, and normotensive. Breath sounds were decreased bilaterally and SpO2 was 88%. Oxygen therapy was immediately started, and a chest X-ray PAV was obtained, revealing a simultaneous bilateral (B/L) pneumothorax (with very minimal bilateral effusion) which was larger on the right side (Figure 1 A & B). In addition, a big bulla was noted on the left side. The patient had history of pulmonary tuberculosis and treated with Anti-Tubercular treatment (ATT) for 6 months duration.

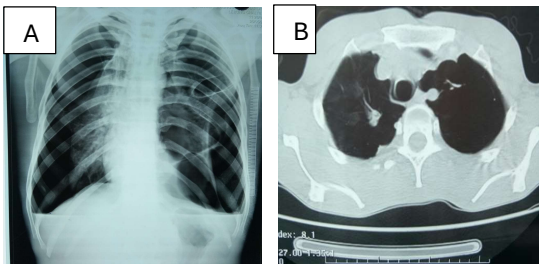

Figure 3: Showing B/L pneumothorax in [A]: Chest X-ray and [B]: CT scan.

The case was treated with chest tube insertion on the right side and the patient got immediate relief (Figure 2 A). Since a bulla was noted on the left side, CT scan for thorax was obtained. The CT showed a successful re-expansion of right side and a big bulla on left side with massive left sided Pneumothorax (Figure 2 B). So, chest tube was also inserted on the left side and bilateral chest expansion was noted in Chest X ray after the procedure (Figure 2 C). After one week, the chest tube on the right side was removed as there was no air leak, no drainage and re-expansion of the chest was noted on Chest radiograph. The ICD tube on the left was kept in situ and CTVS consultation was taken for possible Video - assisted thoracoscopic surgery (VATS). Later, bullectomy was done in the higher center.

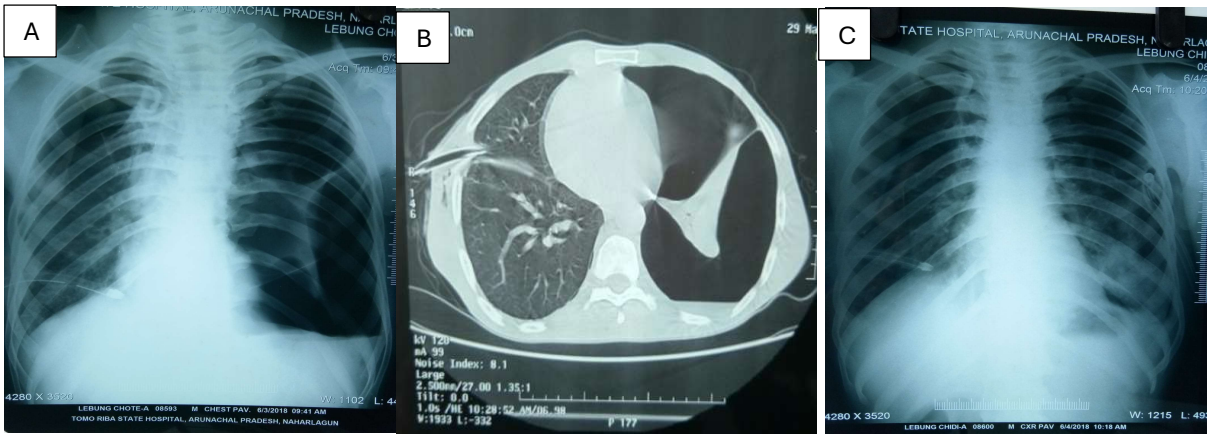

Figure 2, [A]: Chest X-ray (PA) showing re-expansion of right lung, [B]: CT Thorax showing massive left pneumothorax with ICD tube in right, and [C]: Chest X-Ray showing B/L lung expansion with ICD in situ.

Discussion

Although in clinical practice, spontaneous pneumothorax is a frequently encountered disease, Spontaneous Bilateral Secondary Pneumothorax (SBSP) is rarely reported in the literature. In SBSP cases, there is usually an underlying lung disease, such as chronic obstructive pulmonary disease, malignant neoplasm, or Pulmonary tuberculosis. Infrequently, SBSP may be caused by the pleural window communicating with the bilateral pleural spaces[2] and it may be found along with malignancies[3].

The clinical presentation of SBSP cases vary case-to-case. Patients may present with alternating clinical signs and symptoms, ranging from mild dyspnea to cardiopulmonary failure[1] which may be sudden in onset. They may usually be admitted to the hospital with sudden onset of dyspnea and pleuritic chest pain on the side of the pneumothorax. Physical examinations may appear normal in minimal pneumothorax. In patients with large or massive pneumothorax, hyperresonance can be detected on percussion, and breath sounds may diminish or lost on affected area. Diagnosis is usually based on radiological findings. Computerized tomography of the thorax may be indicated to detect underlying lung pathology to determine the cause of spontaneous pneumothorax[1,3]. Even though pneumothorax may be easily suspected disease based on a patient's history and physical examination. A delay in hospital admission and radiological evaluation could cause a life-threatening condition due to the rapid decrease in breath sounds, respiratory difficulty and decrease in oxygen saturation.

In the treatment of pneumothorax, the main aims are to achieve complete lung expansion and prevent a recurrence. There are different treatment modalities, ranging from observation to thoracotomy. These treatment modalities include needle aspiration, percutaneous catheter drainage, tube thoracostomy with chemical pleurodesis and video-assisted thoracoscopic surgery (VATS). In present paradigm, VATS is accepted standard approach for the surgical treatment of spontaneous pneumothorax. One of the important advantages of VATS is the ability to evaluate the entire thoracic area by video. Surgical treatment is recommended to reduce the risk of recurrence in SBSP[2,3]. Bullectomy is the most effective method for preventing recurrences. In addition, apical pleurodesis further reduces the risk of recurrence. Management of symptoms may be done by Chest drainage which constitutes the basis of initial treatment, after which a primary or secondary pneumothorax distinction can be made. Planning additional surgical procedures or

pleurodesis according to the patient's clinical presentation and underlying disease is more appropriate.

In conclusion, SBSP is a rare clinical condition that frequently occurs as a result of underlying lung disease. Because the recurrence of SBSP is life threatening, a definite treatment approach should be applied with the aim of preventing recurrence. Due to its life-threatening nature, early diagnosis and appropriate treatment in SBSP case can save patient's life.

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Uncommon Clinical Presentation of Sacro-Iliac Joint Arthropathy: A Case Report.

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Introduction

The SI joint (SIJ) is diarthrodial joint that connects the iliac bone to the sacrum and transfers the axial weight. The Sacro-iliac joint (SI) syndrome is pain originating from sacroiliac joint. The pain of SI syndrome can be elucidated in the region of the affected sacroiliac joint and the medial buttock, which may be referred to the groin, posterior thigh, and occasionally below the knee[1]. The pain due to SI joint arthropathy is 15 - 30% of all mechanical low backache[2].

Case Description

History and clinical findings: A 75-yearold male patient who came to preoperative checkup (PAC) clinic with a diagnosed lumbar inter-vertebral disc prolapse posted for lumbar laminectomy and disc de-compression surgery. The patient presented with pain in the right buttock referred to the lower limb for a month with no history of trauma, diabetes, hypertension, or rheumatoid arthritis. The pain was aggravated by standing, which decreased on lying down. He had history of breathlessness on walking at normal pace. The patient had deep tendon reflexes in both upper and lower limbs. The pulse of the patient was irregular with normal pressure (122/80 mm Hg). On physical examination, there was localized tenderness around right posterior superior iliac spine (PSIS), Straight leg raising (SLR) was 75 % in right and 90% on left leg. The Flexion Adduction Externa Rotation test (FADER) and Flexion Adduction Internal Rotation test (FADIR) was negative for both legs. The Visual Analogue Score was 8/10.

Investigation:

On Xray pelvis, there was suggestive finding of SI joint arthropathy. MRI image of lumbar spine showed loss of lumbar lordosis at L2, disc space at L4 – L5 was narrow with mild disc bulging with spinal canal stenosis (measuring 6 mm anteroposterior diameter), which lead to a diagnosis of prolapse inter-vertebral disc (as shown in figure 1). The routine blood investigation did not show any abnormality. Serological test of Rh factor and CRP were found to be negative.

Electrocardiography showed atrial fibrillation. On further evaluation with echocardiography, the patient was having ventricular (left) dysfunction with dilated cardiomyopathy, sclerotic aortic valve with aortic regurgitation, severe mitral and tricuspid regurgitation, pulmonary artery systolic pressure of 60 mm Hg and ejection fraction of 35%. He was deemed unfit for surgery until the cardiovascular status was optimized, thus was referred to pain clinic.

Figure 1: lumbar MRI image with L4 - L5


Figure 2: USG image of SIJ block with needle shadow

Management

The case was posted for lumbar laminectomy with disc decompression, but surgery was deferred due to cardiovascular condition Clinical findings suggested SIJ arthropathy. Also, the patient could not be subjected to physical therapy due his physical status. Henceforth, patient was managed with gabapentin and ultrasound guided SIJ injection (figure 2) with triamcinolone acetonide 20 mg (2 ml) with 2% lignocaine (1 ml). The procedure was done under USG guidance using 5-10 Hz linear probe and in plane approach The VAS score was reduced to 2/10 after SIJ injection and 4/10 on one day post procedure.

Discussion:

The SI joint is diarthrodial joint, consisting of synovial joint at the lower part and syndesmosis joint at the postero-superior aspect without cartilage, synovium, or capsule. Typically, sacroiliitis will affect the thinnest cartilage on iliac side and then progress to the sacral side. Sacroiliitis is term used for inflammation of one or more SI joint.

The SI joint arthropathy is manifested early unlike other joint of the body[3]. The causes of SI arthropathy is not well understood but includes osteoarthritis due to advanced age, pregnancy, trauma, H/O spine surgery and systemic illness like rheumatic arthritis, psoriasis, gout, ankylosis spondylitis, microorganism infection, mechanical fault of pelvic symphysis or SIJ instability / asymmetry due to SIJ stiffness, joint hypermobility, and insufficient pelvic girdle stability caused by faulty load transfer from spine and lower limbs causing increases in shear forces on SIJ[4]. Management of SIJ syndrome consists of multi-pronged approach that includes physical therapy, intra-articular joint injections (local anaesthetics and steroids, platelet rich plasma, prolotherapy and other biologic therapies), Radiofrequency ablation (pulsed/thermal/cooled) and Surgical repair[1,5].

In the present case, patient was managed with SIJ injection though it was a image proven lumbar disc herniation. After the SIJ injection therapy, the patient had tolerable symptoms and discectomy was not done due to symptom free state. Literature suggests that sacroiliac joint arthropathy is common syndrome with uncommon presentation[6]. Galm R et al[7] in their study found Sacroiliac joint dysfunction in patients with low back pain with image-proven lumbar disc herniation. In their study they concluded that consideration of SIJ dysfunction should be made in the presence of lumbar and ischiatic symptoms regardless of intervertebral disc pathomorphology. Similarly, Blaettner T and Thoden U[8] also suggested in their study to consider SIJ syndrome in the cases of low back pain with herniated disc as they found high correlation between lumbar disc herniation (L5-S1 > L 4-L5) and sacroiliac joint syndrome. The SI syndrome may also mimic symptoms of ankylosis spondylitis[9].

Conclusion

Low back pain (LBP) radiating to the leg is not always a sciatica. In sciatica, limb pain is more than back pain with pain and numbness radiating below the ankle to the foot. PIVD detected in MRI is not always the cause of sciatica, especially when it is chronic. Sacroiliac joint pain is one of the common causes of low back pain radiating to lower limbs.

Conflict of interest: None

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Primary Orbital Hydatid Cyst – a Rare Case Report.

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Introduction

Hydatid cyst is a worldwide zoonosis. This parasitic disease is caused by the larval stage of the dog tapeworm – Echinococcus granulosus[1-3]. The disease is more common in the rural areas of South America, East and North Africa and the Middle East. This zoonotic disease is seen mainly in the Mediterranean countries[4]. Hydatid cysts with orbital involvement are rare, comprising less than 1% of all systemic involvements of hydatid cysts[1].

Case Report

A 50-year man presented in the Ophthalmology Department with complaints of diminished vision, diplopia and swelling in his right eye that had lasted for two months. No additional pathologies were detected in his neurologic and systemic examinations. Routine blood investigations were normal.

The patient underwent paranasal-orbital computed tomography (CT) without contrast. The CT revealed a well demarcated cystic lesion with internal septations and multiple daughter cyst within the intraconal space of the right orbit with extraconal extension. The lesion measured ~ (18 x22) mm. The lesion causes indentation and compression of the adjacent right lateral rectus muscle. There is indentation on to the right eye globe with associated mild proptosis (Figure 1). No additional pathologies were detected on CT thorax or abdominal sonography. Serology for echinococcus was positive.

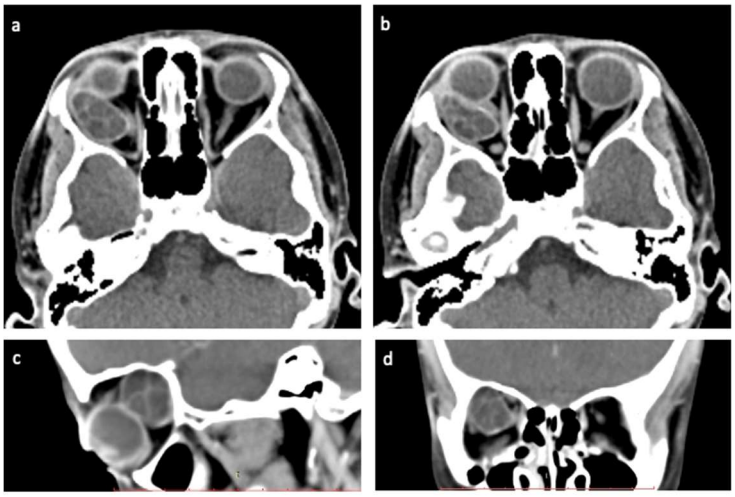

Figure 4: NCCT showing axial (a & b); sagittal; (c) and coronal; (d) image with unilocular and multiple daughter cyst in postero-superior quadrant of the intraconal space of right orbit.

Discussion

Hydatid cysts are commonly located in the liver (60%) and the lungs (20%)[3,4]. The orbit is a rare location for echinococcal infestation and makes up less than 1% of all cystic involvements[1,5]. Hydatidosis of the orbit is more common in the young adults and children[5]. Other systemic involvements are rare in cases of orbital hydatid cyst. Orbital involvement is usually unilocular, without right or left dominancy[2,3]. The cysts are usually located in the retrobulbar region[2].

Unilateral proptosis is the most common clinical finding in intraorbital hydatid cyst cases[2,3]. Other findings include loss of vision, orbital pain, chemosis, palpebral oedema and orbital cellulitis. Painless and slow growing proptosis is a highly suspicious indicator of orbital hydatid cyst in the endemic regions.

On CT, the orbital hydatid cyst is typically seen as an unilocular lesion with internal septations and daughter cysts. Hydatid may also present as a non-enhancing homogeneous cyst with low density with similar attenuation to the vitreous cavity.

CT is particularly beneficial in evaluating the accompanying bony changes as the cyst may cause erosion of the adjacent bony orbital wall[3]. MR imaging is superior to CT with regard to the evaluation of the inner structure of the cyst and determining its association with neighboring soft tissues[3]. However, it is often difficult to distinguish atypical hydatid cysts from other mass lesions of the orbit via radiological imaging methods. Therefore, other cystic mass lesions like abscess, mucocele, lacrimal tumors or cysts, and lymphangiomas must be considered in the differential diagnosis[2,3].

Surgical removal is the treatment of choice for orbital hydatid cyst. An accurate preoperative diagnosis and localization of the cyst is important to avoid rupture of the cyst and dissemination of the parasitic disease during the surgery[3,4]. Hydatid cyst should always be considered in the differential diagnosis of orbital cysts in endemic areas. The serological tests for echinococcus are often negative in cases of orbital involvement. Therefore, radiological imaging methods are valuable in the diagnosis of orbital hydatid cysts[2,3].

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Cesarean Scar Ectopic Pregnancy: Diagnosis Conundrum

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Introduction

Cesarean scar ectopic pregnancy (CSP) is defined as implantation within the myometrium of a prior cesarean delivery scar. CSP is divided into endogenic and exogenic patterns. Its incidence ranges from 1:1,800 to 1:2,216 and constitutes 6.1% of all ectopic pregnancies with a history of at least one cesarean section[1]. Endogenic CSP implants on the scar and expand towards the uterine cavity whereas the exogenic CSP implants deeply within the scar niche and grow towards the bladder or the abdominal cavity[2] with the potential for scar rupture or intra-abdominal bleeding with placenta accreta.

Case report

A 30-year-old parturient with second gravida, and post cesarean section (3 year back) presented to the outpatient department for heavy bleeding per vaginum after taking medication for termination of pregnancy (mifepristone 200 mg and tabs misoprostol 800 ug) 5 days back. She has history of amenorrhea for one month, which was diagnosed as intrauterine pregnancy by ultrasonography (4 weeks, 2 days) and positive urine pregnancy test. On clinical examination abdomen was soft with no tenderness. On bimanual examination, cervix pointed upward, uterus was bulky, retroverted and bilateral fornixes were free with no tenderness. The routine blood investigations were normal, with hemoglobin of 10 mg/dl.

The ultrasonography at the time of admission showed a thinned-out myometrium of 2mm, empty uterine cavity and empty endocervical canal with the gestational sac being embedded in the anterior myometrium in the previous cesarean scar (between the gestational sac and the bladder as shown in Figure 1). The vascularity was largely increased with a huge feeder vessel identified in Doppler study (figure 2) which also gave impression of gestational trophoblastic disease (invasive mole). Though these findings were consistent with cesarean scar ectopic pregnancy according to Green-top guidelines of Royal College of obstetrics and gynecology[3], a contrast enhanced MRI was done identifying a well-defined

4x4x4.4 cm T2W heterogeneous hyperintense mass involving the endometrial cavity and anterior myometrium in the lower segment for confirmation of CSP. The serum β-hCH was 593 mIU/ml on admission, which reduced to 496 mIU/ml after 48 hours (showing a fall of 16.3% in β-hCG level).

Figure 1: Thin out myometrium

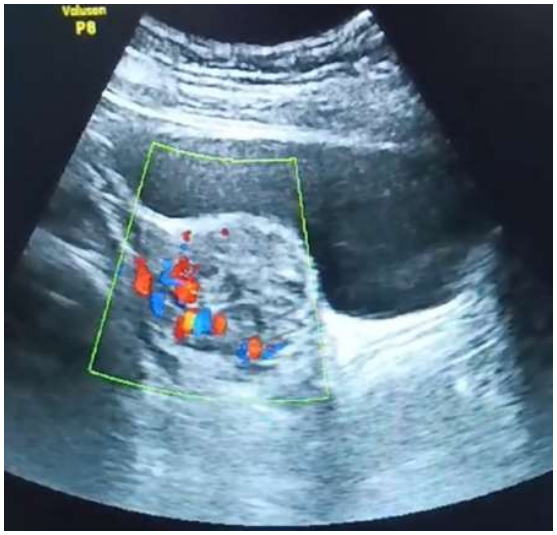

Figure 2:Color Doppler with the feeder vessel.

The case was managed with operative laparotomy where both adnexa were found to be normal with minimal free fluid in the pouch of Douglas. However, the myometrial wall was thinned out with bulging gestational mass at the previous cesarean scar (Figure 3 and figure 4). Vasopressin 20 units diluted in 200 ml Normal Saline was injected locally in the myometrium. The feeder vessel was clamped with a vessel clamp (star in figure 4). Excision of the trophoblastic tissue was done after careful dissection of the bladder. Blood loss during the procedure was approximately 50 ml. The tissue was excised, and the defect was repaired in the layers. Post operative period was uneventful and the patient was discharged on post-operative day 3 with oral antibiotics and advised contraception for next 6 months. The histopathological examination confirmed the diagnosis of Cesarean scar ectopic pregnancy.

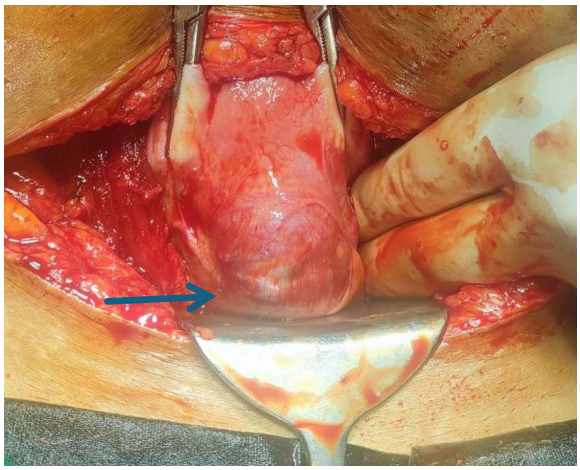

Figure 3: Thinned out anterior myometrium thinning and the previous cesarean scar site (arrow).

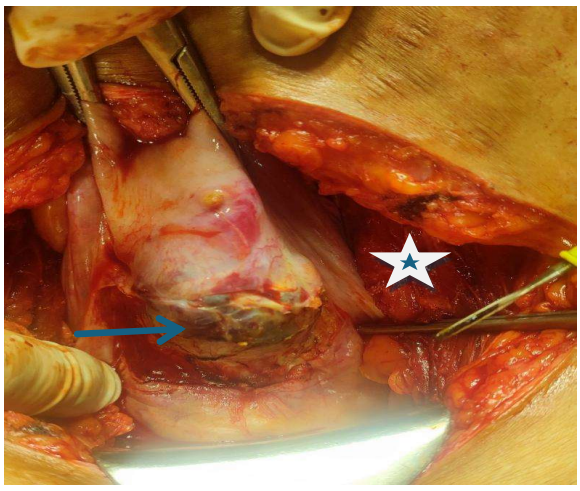

Figure 4: Picture anterior myometrium with the trophoblastic tissue (arrow), clamp on feeder vessel (star).

Discussion

CSP is the implantation of embryo into the defect caused by impaired healing of the previous caesarean scar [4]. The incomplete healing of tissue may result in thinning or even dehiscence of the remaining myometrium [5]. There are no pathognomic signs and symptoms for CSP. It may present with vaginal bleeding, pain abdomen, and sometimes with massive hemoperitoneum with circulatory collapse[6]. If left untreated, it may lead to uterine rupture[7]. Transvaginal sonography (TVS) with color Doppler is the imaging of choice. In case of inconclusive findings which can occur occasionally like the current case report, MRI is advised. According to Yin, Ling et al[8], 33% of cases are misdiagnosed as early intrauterine pregnancy.

CSP is classified based in the direction of the growth of CSP and Residual myometrial thickness (RMT) into 3 types by Chinese journal of obstetrics and gynecology[9]:

- Type I or endogenic type – CSP implants on the scar and grows inwards.
- Type II and or exogenic type – CSP implants deep with an overlying RMT of <3mm and,
- Type III grow out towards the abdominal cavity.

The current case was differentiated from Molar pregnancy by its location in the anterior lower uterine segment of caesarean scar site, early period of gestation, localized disease and falling trend of serum β-hCG level. The closed internal-os of the cervix and empty endocervical canal differentiated it from cervical ectopic pregnancy.

There are no universal treatment guidelines for management of CSP [10]. Treatment options are transvaginal or laparoscopic resection, uterine artery embolization in combination with dilatation and curettage and hysteroscopy[11]. Treatment with local Methotrexate (MTX) injection (systemic MTX if b-HCG levels were > 20,000mIU/ml) with TVS guided sac aspiration has shown effective management along with preserving fertility in an unruptured CSP[12]. The available data suggest for early surgical management in first trimester rather than medical management[11, 13]. But the management must be tailored individually.

The authors summarized that CSP is a rare form of ectopic pregnancy with rise in incidence in parallel to rise in cesarean section rate with varying signs and symptoms, often misdiagnosed in early trimester. Early imaging to confirm the location of pregnancy may be done in a post cesarean patient as the failure of diagnosis in early pregnancy, may lead to increase maternal morbidity and mortality. Relying solely on serum b-HCG is not recommended as in the reported case the level of serum b-HCG did not correlate with the patient's symptoms and intraoperative findings. So far, surgical intervention is choice of management however, more multicentric studies should be done for better understanding of disease course and its management.

Conclusion

CSP is an uncommon ectopic pregnancy. Its diagnosis is very challenging and ruling out the differentials becomes essential. Multicentric studies and individual case

reports should be encourage for establishing recommendations for treatment.

Conflict of Interest: None

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