Intractable Tube Ovarian Abscess : A Comprehensive Review

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KEYWORDS

TOA, Etiology, Pathology, Complication, Management

ABSTRACT

Background: Tube ovarian abscess (TOA) represents a multifaceted infectious entity involving the adnexa, typically arising as a consequence of Pelvic Inflammatory Disease (PID). In this review, the etiology, pathology, management, complications and treatment aspects are discussed.
Methods: PubMed/Medline and Google Scholar databases were searched to identify studies published from 1983 to 2024 covering the etiology, pathology, management, complications and treatment aspects of TOA.
Results: The review findings show that the management of TOAs still poses a significant challenge and there is still a significant danger associated with TOAs.
Conclusion: The need for continuous research and the modification of treatment regimens in order to address the ever-changing problems posed by microorganisms.

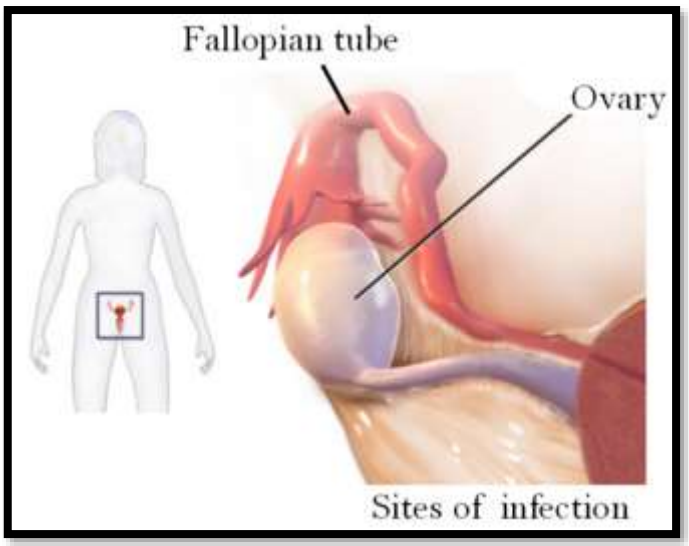
SEARCH STRATEGY:

An online literature/ articles search was conducted by the authors in the PubMed/Medline database and Google Scholar to identify studies published from 1983 to 2024 covering all aspects of TOA using key search terms such as TOA, etiology, Pathology, Complications and Management. In the initial stages, titles, abstracts and, if needed, full articles were screened for eligibility. In the final stage, all included articles were read for appropriateness and relevant data were extracted.
The central questions for this review, which incorporated literature from 1983 to 2024 were:

1. What is the prevalence of TOA?
2. What is the Etiology of TOA?
3. What is the pathology of TOA?
4. What are the medical, surgical management aspects of TOA?
5. What is the differential diagnosis of TOA?
6. What are the complications of TOA?

INTRODUCTION

Tubo-ovarian abscess (TOA) occurrence during the puerperium is notably rare, attributed to the inherent barriers that prevent ascending infections (Lee, 2012). Possible ways for an infection to spread include through blood and lymphatics, infections growing inside an ovarian cyst, or the return of an infection that was already there (Gao, 2021). One of the things that could lead to TOA is having an underlying pelvic inflammatory disease (PID) ((Lee, 2012; Gao, 2021). The symptoms of a TOA include an adnexal mass, fever, an increased white blood cell count, lower abdominal-pelvic discomfort, and/or vaginal discharge. However, the manifestations of this illness might vary greatly from patient to patient. If the abscess were to burst, it might lead to sepsis, which is a potentially fatal condition (Tao, 2018; Fouks "a", 2019; Fouks, 2019; Inal, 2028).

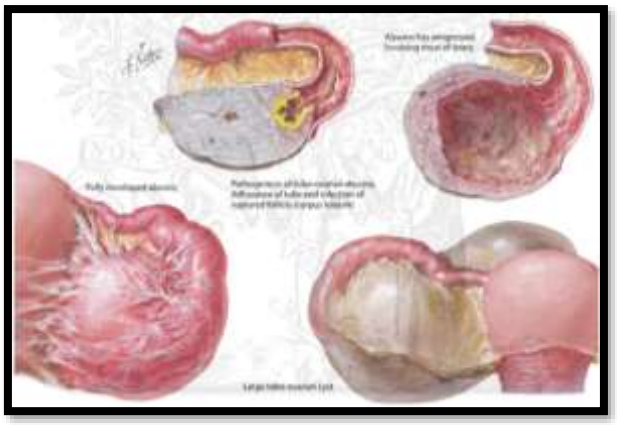


ETIOLOGY

Pathogens originating from cervical or vaginal infections travel to the endometrium before subsequently traversing the fallopian tubes (FT) into the peritoneal cavity, where they might form a walled-off mass. Finally, TOAs may occur as a result of infection spreading to appendix (Fouks, 2019). A study have shown that, they may occur hematogenously from a distant source of infection or may be connected with pelvic organ malignancy also (Inal, 2028).

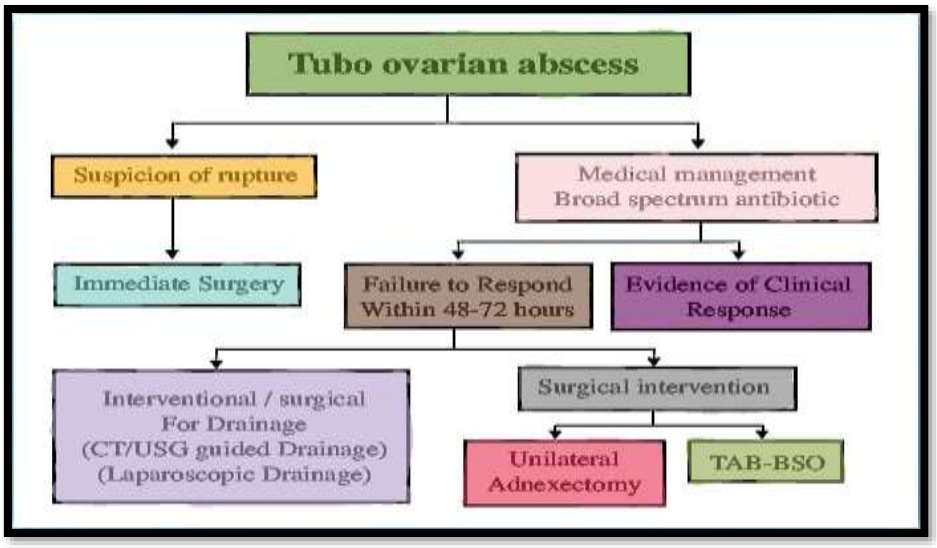
PATHOLOGY

The bacteria originating from the lower genital tract ascend, leading to the formation of an inflammatory mass. Anaerobic bacteria are the predominant kind of bacteria found in TOA, which are frequently polymicrobial in nature. Even though they are linked to STDs, E. coli, B. fragilis, other species, Pepto streptococcus and streptococci. It is noteworthy to note that neither Chlamydia trachomatis nor Neisseria gonorrhea are frequently associated with the isolation of a TOA (Kairys, 2023).



MANAGEMENT

Historically, the management of TOAs involved performing a total abdominal hysterectomy in conjunction with a bilateral salpingoophorectomy (Lareau, 2008). The implementation of drainage techniques, advancements in imaging modalities, and the use of broad-spectrum antibiotics have significantly transformed management practices. Despite careful management of TOA, a significant proportion of studies have demonstrated a success rate of 70% or higher (Brun, 2016; Jaiyeoba, 2011). To monitor trends in leukocytosis, it is advisable to conduct a full blood count on a daily basis (Brun, 2016; Jaiyeoba, 2011; Mollen, 2006). Upon diagnosis of a TOA, a woman should consult a gynecologist and undergo hospital admission for further treatment. Intravenous antibiotics may initiate therapy if the gynecologist detects the TOA before it ruptures. Antibiotic therapy is often used in management, with surgery only being considered in situations of suspected TOA rupture or inadequate antibiotic response (Lareau, 2008). Another study found that, an inversely proportional relationship exists between the efficacy of medical management and the size of the TOA. Specifically, TOAs exceeding 10 cm demonstrate a greater than 60% likelihood of necessitating surgical intervention, in contrast to a mere 20% risk associated with masses measuring 4 cm to 6 cm (Reed, 1991). The CDC guidelines for parenteral management of pelvic inflammatory disease offer comprehensive coverage for tubo-ovarian abscesses as well (Lareau, 2008). Another study concluded that, additionally endorse the incorporation of clindamycin into the treatment regimen (Landers, 1983). According to a study, the size of the TOA decreased in 68% of patients receiving clindamycin, compared to 36.5% of patients who did not receive the antibiotic (Lareau, 2008; Landers, 1983).



TREATMENT

The following treatment aspects are recommended for TOA.

1. "Cefotetan 2g IV every 12 hours or Cefoxitin 2 grams IV every 6 hours & Doxycycline 100 mg orally or IV every 12 hours https://www.cdc.gov/std/treatment-guidelines/pid.htm
2. Ampicillin 2 grams IV every 6 hours and Gentamicin 2 mg/kg loading dose IV, then 1.5 mg/kg IV every 8 hours & Clindamycin 900 mg IV every 8 hours.https://pmc.ncbi.nlm.nih.gov/articles/PMC8315154/
3. Ampicillin/sulbactam 3 gm IV every 6 hours & doxycycline 100 mg IV or oral every 12 hours"(Kairys, 2023).

4. If repeat imaging shows that the TOA is getting worse or if it has ruptured, the best way to treat it is to give the patient parenteral antibiotics for 24 hours while they are in the hospital. After that, the abscess, affected ovary, and fallopian tube should be surgically removed. Following hospital discharge, the patient will continue to receive oral antibiotics, and subsequent follow-up will be conducted to ensure the resolution of the infection (Kairys, 2023). Gjelland et al. (2005) discovered that, 62.3% of these women reported that their discomfort had completely resolved within 48 hours after the first drainage. Due to the high success rate of their study, they propose that this regimen should be regarded as a first-line approach (Gjelland, 2005).

MEDICAL MANAGEMENT

In most situations, antibiotic therapy is adequate and surgical treatment is unnecessary. Several studies have observed that antibiotic treatments are effective in approximately 70% of instances. Antibiotic therapy is only recommended for certain patients: those who don't have any signs of a ruptured tubal-ovarian abscess (like an acute abdomen or sepsis) and whose blood pressure and heart rate are stable; those who have abscesses that are less than 9 cm in size; and women who have already gone through menopause. Observe for indications of sepsis and perform ultrasound follow-ups approximately every three days, or less frequently if there is clear clinical improvement (Reekie, 2018; Cox, 1991). Minimally invasive drainage is used in individuals who have no worsening but display an inadequate response to antibiotic treatment. No studies presently exist that explicitly compare minimally invasive drainage with surgical surgery in these instances. Surgery is necessary when minimally invasive drainage is impractical owing to conditions such as a multiloculated mass, poor abscess localization, or lack of expertise (Gözüküçük, 2021).

SURGICAL MANAGEMENT

A study has shown that, "intraabdominal TOA rupture is a life-threatening condition, thus requires immediate surgery" (Groseclose, 2017). In these situations, it is recommended to combine antibiotic therapy with surgery. It is essential to choose the appropriate incision in order to provide the best possible vision of the pelvic region. People commonly use the Maylard transverse or vertical midline incision. Laparoscopy has proven to be a viable treatment choice for individuals without an abscess rupture (Ribak, 2020; Sharma, 2020). While laparoscopy has been proposed as an alternative to laparotomy in limited case series, the existing data remain inadequate. The decision to utilize laparoscopy versus laparotomy is primarily contingent upon the proficiency of the surgeon (Akıncı, 2024). Laparoscopy should be performed exclusively by surgeons with significant experience, even in the absence of abscess rupture. The surgical management of TOA encompasses intricate and comprehensive procedures that engage inflamed tissues and multiple intra-abdominal organs. The significance of skilled surgeons is paramount. The surgical approaches of laparotomy and laparoscopy for TOA present significant challenges, primarily attributed to the anatomical distortions induced

by inflammation and the delicate characteristics of the surrounding tissues. The participation of a skilled colorectal surgeon is a standard practice in these procedures. Preoperative considerations must take into account these conditions, and if the clinical scenario allows, preoperative bowel preparation should be performed as well (Akıncı, 2024; DeWitt, 2010).

DIFFERENTIAL DIAGNOSIS

1. "Renal stone
2. Appendicitis
3. Cholecystitis
4. Inguinal hernia
5. Obturator hernia
6. Bowel obstruction" (Kairys, 2023).

COMPLICATIONS

The complications include the following:

1. "Chronic pelvic pain
2. Distortion of the pelvic anatomy
3. Ectopic pregnancy in future
4. Infertility
5. Recurrent PID" (Kairys, 2023).

CONCLUSION

In gynecological practice, the management of TOAs poses a significant challenge. This issue reflects the critical intersection of infectious illness, reproductive health, and surgical intervention. There is still a significant danger associated with TOAs, which includes the possibility of experiencing severe consequences such as sepsis, infertility, and an ongoing discomfort in the pelvic region. Maintaining a delicate equilibrium between successful abscess resolution and fertility maintenance, particularly during surgical decision-making, remains a primary issue. A careful and dynamic approach to empirical therapy selection is required because of the advent of antibiotic-resistant strains. This highlights the need for continuous research and the modification of treatment regimens in order to address the ever-changing problems posed by microorganisms.

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CONFLICT OF INTEREST

There is no conflict of interest

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