

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20211165>

Case Report

Pelvic abscess in a sexually inactive teenage girl: a case report and review of literature

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Received: 26 January 2021

Revised: 04 March 2021

Accepted: 05 March 2021

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ABSTRACT

Pelvic abscess, a potentially life-threatening collection of infected exudate in pelvic organs, commonly occurs in sexually active women having pelvic inflammatory disease due to sexually transmitted infections. It is rare to find it in a girl never engaged in sexual activity. The index case was a of pelvic abscess in a 15year virgin girl. She presented with fever abdominal pain and lump. Ultrasonography suggested a complex pelvic mass but on CT imaging pelvic abscess was confirmed. She underwent surgical intervention after failed medical treatment to drain the collection and preservation of internal genital organs. Pelvic abscesses demand prompt diagnosis and management to prevent further complications and long-term poor fertility outcomes specially at young age and should be a differential diagnosis in girls with pain abdomen and fever.

Keywords: Virgin, Pelvic abscess, Antibiotics, Surgical drainage

INTRODUCTION

Pelvic abscess is a potentially life-threatening condition where infected exudate collects in the pouch of Douglas, fallopian tube, ovary, or broad ligament.¹ Most commonly pelvic abscesses are formed in sexually active reproductive-age women as a complication of pelvic inflammatory disease. 85 % are caused by sexually transmitted pathogens, however respiratory or enteric pathogens colonising the lower genital tract can also be causal.² Salpingitis has been reported in premenarcheal girls and adolescents who are not sexually active, but it is very rare.³ Pelvic abscess is very rare in premenarchal or sexually inactive young girls. Because of high risk of abscess rupture leading to septic peritonitis which can cause mortality, an aggressive medical and/or surgical approach is recommended.

There are very few documentation of pelvic inflammatory disease in virgin young girls. A huge pelvic abscess operated in time could successfully save the genital organs

in a sexually inactive girl of 15 years is detailed in this case report with a review of literature.

CASE REPORT

A 15 years old unmarried girl, presented to the emergency department with complaints of high-grade fever and abdominal pain for a week. No cough or bladder bowel symptoms were associated. Pain started in lower abdomen and had spread to whole abdomen, non-radiating, mild to moderate in intensity and was relieved on medication. Non-projectile and non-bilious vomiting associated with intake of food was present. Her menstrual cycle was regular with normal flow and no dysmenorrhoea. Her past medical and surgical history were non-significant. She had no personal or family history of tuberculosis or malignancy.

She was thin built with BMI-15, mild pallor, no icterus, no rashes, febrile to touch. Respiratory, cardiovascular, nervous system examination were all normal. Her

secondary sexual characters were well developed. Abdominal examination revealed a huge mildly tender abdominopelvic lump of 20 week size width from right iliac fossa to hypogastrium. It was cystic to firm on touch, margins were not distinct, immobile. No organomegaly or ascites could be elicited. On local examination of perineum, foul smelling purulent discharge was staining the introitus and hymen was intact. A negative urine pregnancy test excluded pregnancy related conditions. Parenteral broad-spectrum antibiotics, fluid and supportive treatment was begun after hospitalisation and monitoring for sepsis and other investigations for mass and fever were ordered.



Figure 1: Axial view CT scan abdomen shows large posterior hypodense collection with peripheral oval intensification signifying multiple pockets of abscess in recto-uterine pouch.

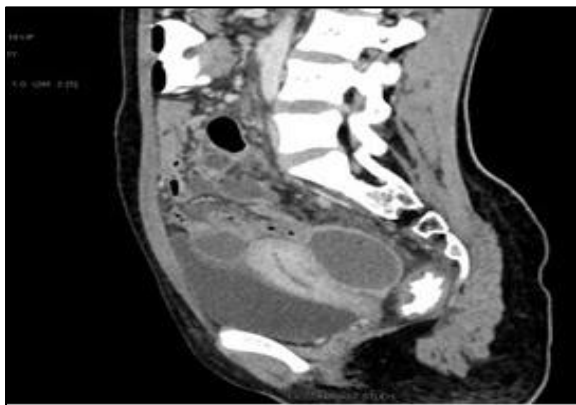


Figure 2: Sagittal view CT scan abdomen shows multiloculated collection from pouch of Douglas extending up to anterior abdominal wall.

Fever investigations showed leukocytosis of 25,000/dl in complete blood counts and raised CRP (14mg/dl). Blood cultures and urine cultures came sterile. Malarial and Widal testing for Typhoid were negative. Mantoux test excluded tuberculous origin of fever. Ultrasonography whole abdomen reported a heterogenous mass of size 15 x 12 x 5 cm noted in Pouch of Douglas extending above and anterior to uterus, multiple septations were noted within suggesting complex tuboovarian/pelvic mass. Contrast

enhanced CT Scan reported a hypodense collection with peripheral oval intensification signifying multiple pockets of abscess in recto-uterine pouch (Figure 1, 2).

CT guided aspiration of the pelvic abscess showed growth of *Escherichia Coli*. As she failed to respond to antibiotic treatment (continued fever and raised blood markers), exploratory laparotomy undertaken. On laparotomy, foul smelling purulent discharge was present with matted and adherent bowel mass attached, to anterior abdominal wall and uterus. Blunt adhesiolysis was done to reach multiple pockets of pus which punctured and drained out. Uterus was normal looking but covered with thick pus exudate, bilateral tubes were dilated oedematous and filled with pus, pyosalpinx, bilateral ovaries were encased with tube forming tubo-ovarian complex. Adhesiolysis of tubes and ovaries from surrounding bowel loops was done, fimbriostomy done to evacuate pus from pyosalpinx. 600ml pyogenic fluid was drained from pelvic abscess, blood loss was 450ml. Upper abdominal and bowel exploration was normal. Hemostasis achieved, copious irrigation of abdominal cavity with normal saline done before mass closure of anterior abdominal wall.

Post-operative care with sensitive (culture of pus showed significant *Escherichia Coli* growth) parenteral antibiotics, 2 units of blood transfusion and supportive treatment continued for a week. Patient recovered well and was discharged on 8th post-operative day. Her uterus, tubes and ovaries of both sides could be saved successfully.

DISCUSSION

Pelvic abscess or tubo-ovarian abscess is a serious complication which can have high mortality or serious long-term morbidity as it occurs commonly in young reproductive aged females. They occur in 20-35 years age group, those who have multiple sexual partners or a prior history of PID. Tubo-ovarian abscesses have been reported in young women who are not sexually active but no cause could be identified in 80% cases (4 out of 5 cases), in one appendectomy had been performed in a study reported by Cho et al.⁴

The abscess occurs most frequently from upper genital tract infection, however it has been seen post hysterectomy also.⁵ PID is considered to be rare in sexually inactive girls. Literature search has revealed very few cases of tubo-ovarian abscess in virgins.^{6,7} It is also important to elicit a history of sexual abuse or contact in young girls. Meis et al. had described a 4-year-old girl with salpingitis after an abdominal trauma with retroperitoneal hematoma.⁸ Pelvic abscess can occur in 0.5-1% cases after operative procedures like hysterectomy, laparotomies, cesarean sections, and induced abortion. Also causes like appendicitis, diverticulitis, inflammatory bowel disease may be present.⁹

Pelvic abscess is a sequelae infective and inflammatory process PID. Abdominal ostium of inflamed fallopian tube

pours exudates to produce pelvic peritonitis and pelvic abscess. Tubo-ovarian abscess mostly polymicrobial with a predominance of anaerobic bacteria in a mixture of aerobic and facultative organisms.¹⁰ *Escherichia coli*, aerobic streptococci, *Bacteroides fragilis*, *Prevotella*, and other anaerobes, such as *Peptostreptococcus* are common pathogens. *Neisseria gonorrhoeae* and *Chlamydia trachomatis* the most common organisms responsible for PID are rarely isolated from the abscess. In young girls, poor hygiene and frequent unclean handling of genitalia can transfer microbes from upper respiratory tract to genital tract. A hematogenous or lymphatic spread from respiratory tract or bowel infection migration to pelvic structures may occur. Few unusual pathogens reported, include *Candida* species, *Pasteurella multocida*, *Salmonellae* species, and *Streptococcus pneumoniae*.¹¹⁻¹³ The current case had no history of upper respiratory tract infection or any operative procedures in recent few days/weeks. She had growth of *Escherichia coli* both in vaginal discharge and abscess fluid, indicating a primary lower genital infection as the cause of abscess.

The classically described symptoms are fever, acute lower abdominal pain and vaginal discharge.¹⁴ In stage of PID symptoms may be mild, bearable and non-specific delaying diagnosis and progression to Tubo-ovarian complex and abscess. Worsening infection may result in sepsis / rupture and peritonitis in 15% women. Clinical diagnosis remains the most important practical approach. Women > 40 years and high infective markers risks abscess formation in PID.¹⁵ Spot pregnancy test is a must to rule out pregnancy related emergencies. Our patient presented with classic symptoms of pelvic abscess but other causes like appendicitis, pyelonephritis, diverticulitis were ruled out by history, vaginal discharge and imaging.

Ultrasound is the first modality to diagnose tubo-ovarian abscess which has sensitivity of 75 to 82% and specificity of 92 %. In a study conducted by Hiller et al. majority of abscess were multilocular 85% with internal fluid echoes (73%) and thick enhancing uniform abscess wall (95%) CT scan has been shown to have slightly better sensitivity and specificity than ultrasound in a few studies.^{16,17} Lee et. al also reported a lower sensitivity and specificity of ultrasound for the diagnosis of tubo-ovarian abscess in emergency acute cases of PID.¹⁸

Medical treatment with broad spectrum antibiotics although effective in up to 70% of tubo-ovarian abscess is associated with a high recurrence rate, which may affect later fertility.¹⁹ On clinical suspicion of abscess, broad-spectrum antibiotics to cover the polymicrobial infection should be initiated without delay. An Abscess size of less than 7 cm is predictive of medical treatment success with antibiotics alone, shorter length of hospital stays. Larger abscess (>7 cm) necessitates surgical drainage.²⁰ In this case, patient failed to respond to antibiotics, underwent laparotomy due to 15 cm multiloculated abscess.

Percutaneous imaging guided drainage has also been used successfully. Ultrasound or CT Scan is minimally invasive, well tolerated, reduces hospital stay and avoids the surgical and anaesthesia risks.²¹

Surgical exploration and abscess drainage also reduces post-operative morbidity and further complications like septicemic shock or peritonitis. Surgical procedures can be open or laparoscopic, simple drainage or removal of all infected genital organs. Laparoscopy is possible but requires much skill as tissues are oedematous and friable, need utmost gentleness in handling. Laparoscopy should be considered to all patients with TOA who desire future conception.²²

It is well known that pelvic abscess causes adhesions, tubal damage, tubal blocks leading to either infertility or increased risk of ectopic pregnancy in future. Pregnancy rates after a pelvic abscess are estimated to be as low as 15% or less. Long term pelvic adhesions can result in chronic pelvic pain, reducing quality of life. So, early diagnosis and prompt management is warranted in these cases.

A pelvic abscess is not a considered option in the first few differential diagnosis in a young 16 years virgin girl presenting with pain abdomen and fever. The other common causes of gastrointestinal (appendicitis, Meckel's diverticulum) and urinary conditions (nephrolithiasis, pyelonephritis) should be excluded first. However once pelvic abscess is suspected a very aggressive management will rescue the girl from immediate and future fertility complications.

CONCLUSION

In an adolescent young girl, having fever, pain abdomen and abdomino-pelvic lump, pelvic abscess should also be a differential diagnosis for early diagnosis and management to prevent further septic and reproductive complications and to improve long-term fertility outcomes.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Anant M, Sinha K. Pelvic abscess in a sexually inactive teenage girl: a case report and review of literature. *Int J Reprod Contracept Obstet Gynecol* 2021;10:1713-6.