SUNTEXT REVIEWS

SunText Review of Case Reports & Images

ISSN: 2766-4589

Open Access
Case Report
Volume 4:5

Iatrogenic Pyosalpinx – Lessons from Infertility Workup

Kaur B* **and Fayyaz S**

Department of Obstetrics and Gynecology, Santokba Durlabhji Memorial Hospital and Research Center, Jaipur, India

***Corresponding author:** Kaur B, Department of Obstetrics and Gynecology, Santokba Durlabhji Memorial Hospital and Research Center, Jaipur, India; E-mail: dr.bjkaur@gmail.com

Received date: 23 June 2023; **Accepted date:** 10 July 2023; **Published date:** 15 July 2023

Citation: Kaur B, Fayyaz S (2023) Iatrogenic Pyosalpinx – Lessons from Infertility Workup. SunText Rev Case Rep Image 4(5): 196.

DOI: https://doi.org/10.51737/2766-4589.2023.096

Abstract

We present a case where a young female in an outside fertility clinic was worked up for infertility and underwent hysterosalpingography. She subsequently landed up in distressed state and was brought to our tertiary care hospital in as an emergency .We stabilized the patient and then performed Diagnostic laparoscopy which revealed iatrogenic pyosalpinx. The case is intended to make readers aware of the fact that every procedure – diagnostic or therapeutic has inherent risk and therefore mandates that the doctor makes a judicious decision weighing the advantages, disadvantages, material risk involved in a case to case basis so that iatrogenic complications are minimized in clinical practice if not eliminated.

Keywords: Pyosalpinx; Hysterosalpingography (HSG); Infertility

Introduction

The changing socioeconomic demographics of 21st century have brought changes in life style, better awareness for women education, career needs and have resulted in increased age of marriage. On the other side of coin, late marriages with changing priorities and more focus on career has resulted in increased pool of couples seeking advice for infertility related issues. The added pressure from families for bearing children prompts couples to approach infertility centers or gynaecologists to facilitate quick conception. The mushrooming In vitro fertilization (IVF) clinics in fierce competition with their peers broadcast their achievements by sharing reviews and success stories of couples who received treatment resulting in quick conception. The stake holders – patients, gynaecologists or IVF centers finally are quick to resort to use of diagnostic modalities like Hysterosalpingography (HSG) without assessing the pros and cones. The present case is a glaring example where a young female undergoing work up for infertility underwent HSG in an outside infertility clinic and eventually landed up in distressing situation. She came to our tertiary care hospital in distressing situation and after stabilized underwent Diagnostic laparoscopy at our centre revealing pyosalpinx most likely an iatrogenic one. The case is intended to make readers aware of the fact that every procedure – diagnostic or therapeutic has inherent risk and therefore mandates that the doctor makes a judicious decision weighing the advantages, disadvantages, material risk involved in a case to case basis so that iatrogenic complications are minimized in clinical practice if not eliminated.

Case Report

A 27 year old married female PL1 presented to our emergency with complaint of constant pain in lower abdomen (left side) associated with fever, nausea and vomiting for last 2 days. She had undergone intrauterine insemination (IUI) at an outside center 3 days back and thereafter had complaint of left sided abdominal pain. The pain was of constant nature, non-radiating and was not relieved even by IV analgesics. Prior to her visit in emergency she also had high grade fever 102 F0 associated with chills and rigors. She was prescribed oral antibiotics and anti pyretics by local physician. The medical history also revealed that she had an ovarian cyst 5 years back which was removed by laparoscopic cystectomy , however no details of histopathology report was available on record. She had a normal delivery a female child, now 7 years of age. The history also revealed that she was seeking consultation from a gynecologist for infertility. She underwent HSG a month back and thereafter had abdominal pain.

The HSG showed right cornual block with left side Fallopian tube dilated, tortuous with minimal spill (Figure 1). Her gynaecologist prescribed pain killers but there was no respite. Subsequently in her next menstrual cycle she underwent IUI which further worsened her pain with no respite even after taking IV analgesics and oral antibiotics, eventually landed up in emergency service of our hospital. On examination she was alert, in pain, febrile with temperature 1040 F, dehydrated, Pulse-120 /min, Respiratory rate -20, Blood Pressure-110/70mmHg, with pain score of 7-8 (on Visual Analogue scale). There was no pallor, icterus, clubbing, cyanosis or pedal edema. The breast examination was normal and no lymphadenopathy noted. On examination abdomen was soft without distention having normal bowel sounds but there was tenderness on left lower quadrant of the abdomen. Per vaginum examination revealed discharge from cervix, cervical motion tenderness was present with fullness in left fornix. Her ultrasound report done a day back was suggestive of left adnexal mass.

On examination she was having pain in abdomen, alert and dehydrated. Her vitals were temperature -1040 F, Pulse rate-120 /min, Respiratory rate -20/ min, BP-110/70mmHg and pain score - 7-8 (on Visual Analogue scale). There was no pallor, icterus, clubbing, cyanosis or pedal edema. The breast examination was unremarkable and there was no lymphadenopathy or hepatosplenomegaly. On P/A examination abdomen was soft without distension with normal bowel sounds however there was tenderness in left lower quadrant of the abdomen. Per vaginum examination revealed discharge from cervix; cervical motion tenderness was present and fullness in left fornix. She had an ultrasound report done a day back which was suggestive of left adnexal mass. The patient was admitted and preoperative work up was done. She had O^{+}ve blood group. An automated complete blood count (CBC) demonstrated Hemoglobin- 112 g/L (reference range 130-170 g/L), white blood cell count 18.22 x 10^9 /L (reference range 4-10 x 10^9 /L) Platelet count 650 x 10 ^{9}/L (reference range 150-450 x 10^9/L) and ESR 30 mm per hour. The laboratory investigations revealed-BUN- 5 mg/dl, Creatinine -0.6 mg /dl, Sodium 136 m mol/liter, potassium 3.9 m mol/liter, chloride 99 m mol/lit, SGOT- 22U/L,SGPT 3 U/L and PTT 15.4 seconds (INR – 1.28). C reactive protein- 8 mg/dL, CA-125 -139 U/ml, AFP-<1.58 ng/ml, LDH -218U/L, B-HCG -<2.39 mIU/mL, CEA-3.58 ng/ml and thyroid profile was TSH-2.49 mcIu/ml, T3 - 1.10 ng/ml & T4-16.7 mcg/dL. Test for COVID-19, HIV 1 & 2, Hepatitis B and C viral serology were non-reactive. Malarial smears and rapid malarial antigen test were negative. Routine urine examination did not detect any abnormality. ECG and chest X- ray were unremarkable. The urine culture and high vaginal swab reports were negative. The work up and battery of investigations led to provisional diagnosis of inflammatory pathology. The patient was given Intravenous antibiotics Inj Fortum 1 gm 8hourly, Inj Amikacin 500 mg IV 12 hourly and Inj Metrogyl 100ml IV 8 hourly, intravenous antacids and analgesics. The marker CA-125 was elevated but the values were lower to indicate any ovarian neoplasm. It was decided to perform diagnostic laparoscopy for assessment and deciding further course of operative management. An informed legally valid consent was taken from the patient and her husband explaining about the possibility of opening the abdomen, removal of left side tube and ovary.

Figure 1: *Hysterosalphingography showing right cornual block with left side Fallopian tube dilated, tortuous with minimal spill.*

Figure 2: *Laparoscopic view of left adnexa view obscured by the loop of intestines.*

Figure 3: *Laparoscopic view of left round ligament being pulled up to find plane of separation of left adnexal structure with loop of intestines.*

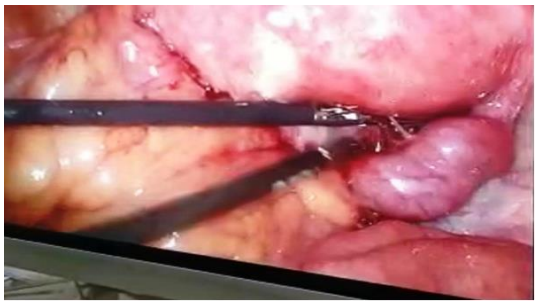

Figure 4: *Laparoscopic view of plane of separation being created between the posterior surfaces of Uterus and right side thickened fallopian tube. While loop of intestines seen engulfing the left Side adnexa.*

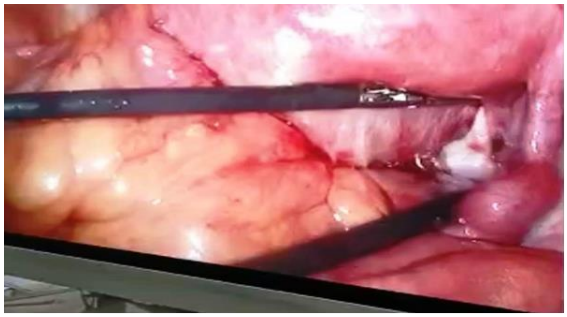

Figure 5: *Laparoscopic view of plane of separation extended to visualize the right ovary. Right Fallopian tube mobilized.*

Figure 6: *Laparoscopic view of thickened, edematous left fallopian mobilized from adhered intestinal loops. Copious foul smelling pus seen coming out of a pseudo cavity formed between left tubovarian tissue And adhered intestines.*

Figure 7: *Laparoscopic view of the pus being suctioned out between the thickened left Fallopian tube and intestinal.*

Diagnostic laparoscopy was performed. A 5mm laparoscope was inserted after creating pneumoperitoneum in supraumblical region. It revealed a distorted pelvic anatomy with a big loop of intestines engulfing left adnexal region which was densely adhered to left adnexa (Figure 2,3). The intestinal loops were bordered medially with left lateral surface of uterus, superiorly with round ligament and laterally with lateral pelvic wall. Another loop of intestine was densely adherent to the posterior surface of the uterus restricting its mobility. A thick edematous right fallopian tube was visible on the right side the remaining view of right side ovary was totally obscured due to dense adhesions, slowly by sharp and blunt dissection right fallopian tube was lifted up by putting a suction cannula in a space beneath the right fallopian tube (Figure 4), lifting the tube made the visualization of right ovary possible (Figure 5). The left round ligament was identified (Figure 3) and millimeter by millimeter dissection was done to remove the adherent bowel loops adherent to left adnexa till copious amount of pus came out of this left side pseudo sac engulfed by left side tuboovarian tissue and intestinal loops (Figure 6). The left side tube was swollen and was dilated about four times its normal size, inflamed and partly necrotic and copious amount of foul smelling pus started coming out from the tube and the sac formed by intestinal loops around the left fallopian tube (Figure 7). The left side tube was removed and sent for histopathological examination. Pus was seen all around the field, the right side tube was also found swollen, enlarged and inflamed .Removal of left fallopian tube cleared the view of the left ovary. The left ovary though normal looking was embedded in the ovarian fossa and no attempt was made to mobilize as the tissues were friable. The chromopertubation test was performed but the right side tube had cornual block. As the patient was under the effect of anesthesia and was not in a state to give legally valid consent for removal of her right tube, it was retained and not removed. The pus was removed and sent for culture. Repeated washing of the operative field was done there were no intraoperative complications. At the end of the procedure Uterus was made free from the adhesions to bowel loops and mobilized, right side tube and ovary retained, left side ovary retained. Haemostasis was ensured and patient stood the procedure well. Postoperatively IV Antibiotics were continued, antacids and analgesics were continued. On day 2 of procedure the patient's hydration improved, she was a febrile and was relieved of pain (visual analogue score of 2). She was started on oral liquids on day 2 and on semi solids on day 3 of the operative procedure. She passed urine adequate urine and motion on day 3. There was no growth after 48 hours incubation from the culture of pus the patient was discharged on 6th postoperative day after giving her 7 days of IV antibiotics. On discharge she was ambulatory, having regular bowel and bladder movements a febrile and free of pain. She came for review after 7 days of her discharge and was

apparently happy about being managed appropriately. The histopathology report of left fallopian tube showed an inflamed, swollen, necrotic edematous tube with evidence of pus. She was advised to go for IVF and not attempt for natural conception because her one tube left was also blocked.

Discussion

The infection of the fallopian tubes also known as Pelvic Inflammatory disease (PID) is associated with major health implications [1]. PID frequently develops among sexually active women in reproductive age group [2,3] When the genital organs of young females get infected by either of these microorganism N. gonorrhea, C trachomatis , mycoplasma genitalium, bacterial vaginosis and anaerobes. The infection with these microorganisms have been implicated with PID , which leads to irreversible damage to fallopian tubes and complications like hydrosalpinx, pyosalpinx, ectopic pregnancy or infertility that may be difficult to treat by medical or surgical methods [4,5]. The diagnosis of PID and its sequel can pose challenge because the clinical manifestations may mimic other pelvic or abdominal conditions. Non-invasive diagnostic modalities like ultrasound, CT scan or MRI are sensitive but laparoscopy remains the modality or choice and gold standard of diagnostic criteria [4]. A pyosalpinx is the acute inflammation of the fallopian tube that fills up and swells with pus. It is a serious complication from untreated or inadequately treated acute pelvic inflammatory disease associated with high morbidity. Pyosalpinx may present with very few specific symptoms. The most common presenting symptom is lower abdominal pain [6]. Other symptoms include fever, nausea, vaginal discharge and abnormal bleeding. On physical examination, patient may show tenderness over the adnexal region with or without guarding or rebound. The absence of specific symptoms and conclusive signs during the physical examination may delay a proper diagnosis. This typical presentation was also given by index case.

Predisposing factors in the development of pyosalphinx include sexual activity, multiple sexual partners, nulliparity, previous episodes of PID, low socioeconomic status and use of intrauterine device [7,8]. In our case the cause of pyosalpinx is exacerbation of PID due to iatrogenic procedures like HSG (Hysterosalpingography) and IUI (intra uterine insemination) in the absence of treatment of ongoing PID. This is actually a cause of concern as these procedures performed in the absence of treatment of underlying PID lead to morbidity and complications. The dilemma in our case is that the results of her HSG were indicative of proximal tubal obstruction on left side and dilated, tortuous left fallopian tube with minimal spill (Figure 7). This implies that the left tube had hydrosalpinx with distal tubal occlusion thereby explaining why the pyosalpinx manifested clinically after the HSG and then subsequent IUI. The diagnosis of PID and its sequel can pose challenge because the clinical manifestations may mimic other pelvic or abdominal conditions. Non-invasive diagnostic modalities like ultrasound [9], CT scan or MRI are sensitive but laparoscopy remains the modality or choice and gold standard of diagnostic criteria [4]. There is often an overlap between appearances of another diagnosis, including ovarian torsion, endometriosis, hemorrhagic cyst or other ovarian cystic masses. In our case the CT report with high CA-125 levels gave an erroneous perception of ovarian mass. Besides the diagnostic modalities thorough history and clinical examination in combination with laboratory investigations can help in clinching the diagnosis. Treatment of pyosalpinx varies from conservative management with IV antibiotics and possibly diagnostic laparoscopy followed by salphingectomy or salphingostomy [10]. Diagnostic laparoscopy followed by removal of pyosalpinx / salphingectomy remains the gold standard treatment. In our case too diagnostic laparoscopy followed by left pyosalpinx removal or salphingectomy with drainage of pus was performed followed by intravenous antibiotics were sufficient for complete resolution. A randomized clinical trial in 2008 demonstrated that drainage of pus with IV antibiotics resolved the symptoms faster than IV antibiotics alone.

Conclusion

We have reported a rare case of pyosalpinx following HSG which was suggestive of hydrosalpinx and partial occlusion followed by IUI procedure in next cycle. Attempts should be made to get HSG done after proper work up of the patient for PID. Vaginal culture followed by appropriate antibiotics should be started prior to procedures like HSG. Diagnostic laparoscopy instead should be encouraged as modalities for assessment of tubal patency for Infertility workup.

Conflict of Interest

Nil

Sources of funding

Nil

Consent and Confidentiality

The authors have taken written consent from patient for publishing the case for academic purpose. Anonymity of patient identification maintained.

References

1. Kim HY, Yang JI, Moon C. Comparison of severe pelvic inflammatory disease pyosalphinx and tuboovarian abscee. J Obstet Gynaecol Res. 2015; 41: 742-746.
2. Lareau SM, Beigi RH. Pelvic Inflammatory disease and tubo ovarian abscess. Infect Dis North Am. 2008; 22: 693-708.

3. Kielly M, Jamieson MA. Pelvic Inflammatory disease in virginal adolescent females without tubo ovarian abscess. J Pediatric Adolese Gynecol. 2014; 27: 5-7.
4. Brunham RC, Gottlieb SL, Paavonen J. Pelvic Inflammatory disease. N Engl J Med. 2015; 372: 2039-2048.
5. Moore MS, Golden MR, Scholes D, Kerani RP. Assessing trends in chylamydia positivity and gonorrhea incidence and their associations with the incidence of pelvic inflammatory disease and ectopic pregnancy 1988-2010. Sex Transm Dis .2016; 43: 2-8.
6. Banikarim C, Chacko MR. Pelvic Inflammatory disease in adolescents. Semin Pediatr Infect Dis. 2005; 16: 175-180.
7. Velcani A, Conklin P, Specht N. Sonographic features of tuboovarian abscess mimicking an endometrioma and review of cystic adnexal masses. J Radiol. Case Rep. 2010; 4: 9-17.
8. Luedders DW, Chalvatzas N, Banz C, Horneman A, Diedrich K, Kavallaris A. Tubo –ovarian abscess in woman with an intrauterine device forgotten for 22 years. Gynecol Surg. 2017; 7: 181-184.
9. Adhikari S, Blaivas M, Lyon M. Role of bedside transvaginal ultrasonography in the diagnosis of tubo –ovarian abscess in the emergency department. Emerg. Med. 2008; 34: 429-433.
10. Aghor VN, Nijm T, Aminde LN. Pyosalphinx causing acute appendicitis in a 32 year old camameroonian female: a case report. 2016.
1.