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## Case Series

### Pelvic Abscess: Sequel of Pelvic Inflammatory Disease

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## Background

Pelvic abscess is the end stage of the progressive upper genital tract infection. We report three cases of pelvic abscess admitted to our centre; two following full term vaginal deliveries (puerperal) and one following a laparotomy for an interstitial (cornual) segment ectopic pregnancy. All three cases presented with pelvic pain, fever exceeding 38° C and tachycardia. After admission, they were all managed in the intensive care unit with senior involvement. Parenteral broad-spectrum antibiotics, resuscitation, re-evaluation and surgical intervention were carried out.

In the case that succumbed to septic shock with multi-organ failure, the bacteriological swabs were positive for *Escherichia coli*. The other two cases were culture negative. We are prompted to share our experience of these cases with other colleagues. It is of interest all the more in view of the fact that each case had different clinical presentation, management, and outcome.

**Keywords:** Bacteriological Culture; Broad-Spectrum Antibiotics; Laparotomy; Pelvic Abscess; Tubo-Ovarian Abscess

## Introduction

Pelvic inflammatory disease (PID) is the long term sequel of an ascending infection from the vagina and cervix affecting the uterus, fallopian tubes and surrounding structures. PID is one of the most serious complications of sexually transmitted diseases which encompass a broad spectrum of conditions including endometritis, salpingitis, salpingo-oophoritis, tubo-ovarian abscess (TOA), pelvic abscess and secondary lesions such as tuberculosis and endometriosis.

PID remains one of the major health issues adversely affecting women worldwide in the reproductive-age[1]. This condition commonly occurs as a result of infections by sexually transmitted pathogens, *Chlamydia trachomatis* or *Neisseria gonorrhoeae*. Less commonly a variety of anaerobic and aerobic facultative vaginal and perineal flora such as *Bacteroides fragilis*,

*Escherichia coli*, *Gardnerella vaginalis* have been implicated[2]. The disease has both significant short-term and potentially devastating long-term complications (pelvic abscess) with a recognised threat to fertility.

Being not a reportable disease, the exact profile on the incidence and prevalence is not available in most countries. Besides, a good medical history, clinical findings and specific laboratory data can be at times non-specific. Therefore, many cases may go either under-diagnosed or under-recognised, leading to long-term sequelae, such as chronic abdominal pain, ectopic pregnancy and infertility[3] hence early provision for medical care may be compromised [4]. The three cases discussed in this article, are illustrative of short comings encountered in daily practice in this part of the world.

### Case Report 1

A 20-year-old Iban lady from East Malaysia in her second pregnancy at 39 weeks underwent a normal labour progress and an uneventful vaginal delivery. Post delivery she was started on a course of becampicillin (penglobe-Astra Zeneca) for a suspected urinary infection that was later confirmed by bacterium and pus cells in the urine. On day-27 post delivery, the patient was seen at the Emergency Department for epigastric pain, fever, chills and persistent vomiting.

She appeared delirious, BP 88/34 mm of Hg, pulse rate of 140/min., temperature 39.5° C with leucocytosis, elevated erythrocyte sedimentation rate (ESR) and C-reactive protein level. There were peritoneal signs of rebound tenderness and guarding. Vaginal examination demonstrated mucopurulent cervicovaginal discharge. The cervical motion tenderness was positive. Transvaginal ultrasound scan revealed an empty uterus with a right-sided complex mass and fluid in the cul-de-sac. She was transferred to the critical care unit, started on fluids and antibiotics: fortum (ceftazidime) and flagyl (metronidazole) in consultation with the critical care physician. When haemodynamically stable, an emergency laparotomy was carried out.

A ruptured right TOA with one litre (L) of pus was found in the pelvic cavity. Unilateral right salpingectomy, debridement and drainage carried out with two large portex drains inserted before closure. Throughout surgery, oxygen saturation was persistently low with hypotension despite fluid and inotropic support. She succumbed on the table. The post-mortem report was death due to septicaemia. The culture grew *Escherichia coli*. The histopathology report was necrotic tubular epithelial cells with obliteration of ovarian architecture and aggregates of acute inflammatory cells, fibrin strands with no detectable organisms.

### Case Report 2

A 40-year old Malay lady in her fifth pregnancy went through normal progress of labour, achieved a normal vaginal delivery at a district hospital. She was referred to us on day-17 with progressive abdominal distension of one week duration. The abdomen appeared grossly distended, fluctuant, and tender with no palpable masses. She looked toxic with temperature 38°C, tachypnoea and hypotension. She was transferred to the intensive care unit for further management. A computed tomography (CT) scan revealed a large, thickened, uniformly encysted inflammatory collection in the pelvic cavity (figures I, II and III). Inflammatory markers were raised with leucocytosis. Pre-operative parenteral, fortum (ceftazidime), gentamicin and metronidazole (flagyl) were started before drainage and debridement.



Fig. I: CT scan image of coronal view of the abdomen with fluid collection in the pelvic and peritoneal cavity

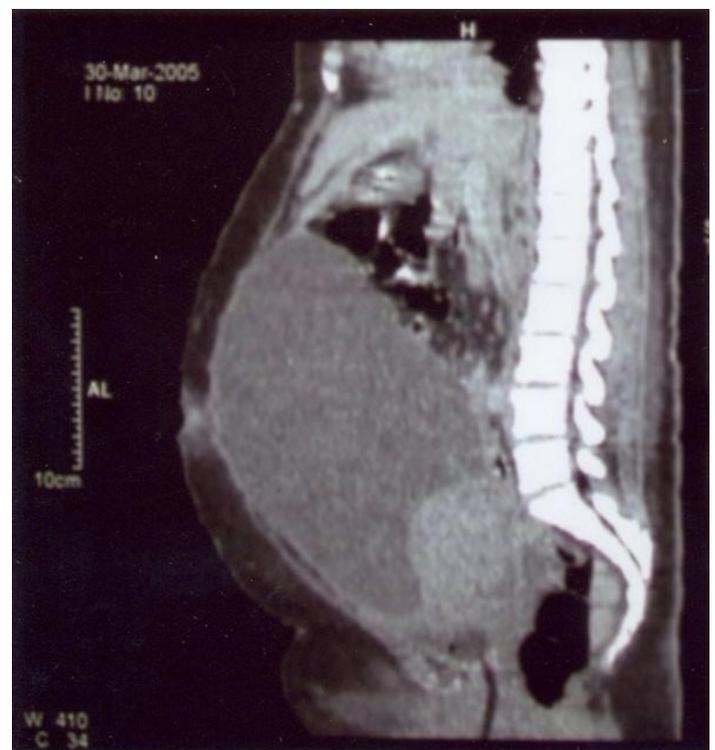
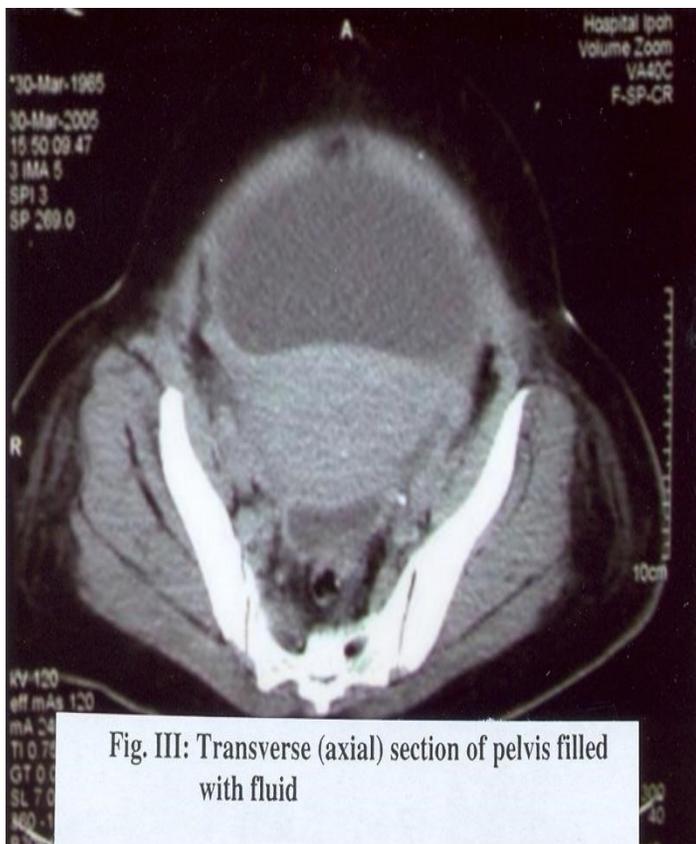


Fig. II: CT scan image of the sagittal section of the abdomen and pelvis filled with fluid



Once patient was stabilized, a laparotomy was arranged. The bowel and liver were pushed up and the appendix appeared unremarkable. The cyst-wall appeared contaminated and friable with dense adhesions. The cyst-wall was incised and three L of non-foul smelling pus was drained. Excision of infected and necrotic tissues was carried out. Histopathology revealed active granulation tissue underlying the abscess wall with clusters of inflammatory cells and there was no evidence of granuloma or malignancy. The patient had an uneventful recovery and was discharged on day-5 with oral vibramycin (doxycycline) and metronidazole for two weeks.

### Case Report 3

A 35-year-old Indian lady had an emergency laparotomy two weeks ago for a ruptured left cornual pregnancy when she was admitted with hypotension and positive pregnancy test. She was readmitted via the emergency department for generalized abdominal pain, distension and fever of three days duration. She appeared ill with a temperature of 38.5°C, abdominal guarding and tachypnoea with marked leucocytosis. A transvaginal ultrasonography showed free fluid in the cul-de-sac. She was started on intravenous fluids and antibiotic coverage with fortum and metronidazole in the high dependency ward in consultation with a critical care physician.

At laparotomy after stabilization, the remaining right oviduct appeared erythematous, dilated with peri-tubal adhesions.

There were no nodules on the surface of the tube. The left tube was absent. Pockets of pus were seen at the resected left cornua of uterus. 500 ml of frank pus was aspirated from the cul-de-sac and sent for culture. The peritoneal cavity was thoroughly irrigated with sterile saline and the abdominal cavity was closed with two corrugated drainage tubes. The patient recovered well and was discharged on day-5. The bacteriological culture report was negative.

### Discussion

On admission, the three cases alluded to were in a severe degree of illness (Table 1). They required supportive measures, antimicrobial coverage and diagnostic tests. The first case was very ill to start off despite resuscitation, she was found to have a ruptured right TOA (confirmed by histopathology) at laparotomy. A unilateral salpingo-oophorectomy and debridement was carried out. Unfortunately, she succumbed on-table in spite of resuscitative measures. Details of post-natal check-ups and health care consultations were not available in this case. The swabs for bacterial culture were positive for *Escherichia coli*. Although a TOA may occur in the acute stage of PID, it remains more common with chronic or subacute PID[5]. Had this patient sought an early treatment, antibiotic therapy and or surgical intervention would have saved her. Our centre does not have the expertise for posterior colpotomy (transvaginal) [6] or ultrasound-guided drainage of abscess [7-11].

The second patient was admitted on day-17 post-delivery, in a toxic state of fever (38°C) and hypotension. Pelvic tomography revealed a thickened, uniform encysted collection in the lower abdomen and pelvic cavity. Computed tomography has become a useful diagnostic imaging modality especially in clinically indeterminate cases[12]. Histopathology of the cyst wall showed clusters of an admixture of acute and chronic inflammatory cells and there was no evidence of malignancy. There was no evidence to suggest endometriosis or any other specific pathology such as tuberculous granuloma. Although Tuberculosis[13] is not endemic in Malaysia, genital tuberculosis may present as tuberculous salpingitis in 10 % of patients manifesting as infertility. However with the resurgence of tuberculosis in this part of the world, it merits mention that incidence of tuberculosis of the female genital tract is relatively low. The cultures were negative for any organisms. The patient made an uneventful recovery.

The third patient presented two weeks after left salpingectomy for left ruptured cornual pregnancy. She presented with lower abdominal pain with evidence of peritonitis and pyrexia. The total white cell count showed leucocytosis and raised inflammatory markers. A pelvic ultrasound showed evidence of fluid in the cul-de-sac. After antibiotic coverage and stabilization, the patient was taken for laparotomy. At this point of time, we could not ascertain whether the infection was sexually or non-sexually acquired. However, post-surgical (salpingectomy) peritonitis might have been the result of compromised

aseptic procedures during the primary surgery. It is also likely that the extra-uterine pregnancy in this patient might have been a sequel to PID[14].

for 14 days. Inpatient regimens consist of Clindamycin (Cleocin) 900mg every 8 hours plus Gentamicin IV or IM (2 mg/ kg body weight) followed by (1.5 mg per kg) every 8 hours.

Case	Age (Years)	Pregnancy Outcomes	Parity	Ethnicity	Clinical presentation	Treatment	Bacteriology culture	Outcome
1	20	Normal vaginal delivery	1	Iban	Urinary Infection Epigastric pain, high grade fever, tachycardia	Right salpingo-oophorectomy, debridement and drainage of pus	<i>Escherichia coli</i>	Succumbed, Post mortem report-septicaemia secondary to ruptured TOA
2	40	Normal vaginal delivery	5	Malay	Progressive abdominal distention, high grade fever, tachypnoea	Drainage of pus, debridement and saline irrigation.	Sterile	Alive
3	35	Two previous normal vaginal deliveries and an ectopic pregnancy	2	Indian	Generalised abdominal pain, high grade fever, tachycardia	Drainage of pus, debridement, adhesiolysis and sterile saline irrigation	Sterile	Alive

TOA-Tubo-ovarian abscess

**Table 1.** Summary of cases, treatment and outcome.

Various guidelines for prevention and management of PID are available[15-17]. Treatment for patients with PID will continue to be broad spectrum antibiotics that cover Chlamydia trachomatis, Neisseria gonorrhoea, anaerobes, gram-negative bacilli and streptococci. As most patients with PID are in the reproductive age group, treatment is targeted primarily at reducing long term sequelae[18]. Various antibiotic policy guidelines offer various regimes for outpatients and inpatients. Outpatient regimens entail mainly oral or parenteral third generation cephalosporins or quinolones until the patient is afebrile followed by Vibramycin (Doxycycline) 100 mg orally twice daily

Alternatively, Metronidazole 500mg every eight hours or Ampicillin/Sulbactam (Unasyn) 3 gms IV every 6 hours plus Doxycycline 100mg orally for 14 days.

Needless to reiterate that all cases of sexually transmitted infections have to be followed up in both the gynaecology and genito-urinary disease clinics. Contact tracing, treatment of partner to prevent re-infection and counseling about effective barrier contraception are pivotal[19]. PID and its consequences pose a substantial economic burden in terms of hospitalization, surgical procedures and lost wages[20].

## Conclusion

Although the cases presented with different clinical manifestations, they had one feature in common i.e. presentation in pre-septicaemic condition. Admittedly limited though, the number of cases seen in this series, experience with larger number of cases will enhance better understanding and management principles of such cases.

The optimum treatment for pelvic abscess would be an approach that is safe, efficacious, cost-effective, minimally invasive with no compromise on the woman's fertility potential. It is therefore essential to recognize the early signs and symptoms of PID and institute empirical treatment based on clinical guidelines well before culture and sensitivity reports. The sensitive issues of contact-tracing and the after effects leading to a substantial financial impact on the health and resources have to be addressed as an educational tool.

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