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CASE REPORT

A Case of *Salmonella enterica* Serovar *Typhi* Tubo Ovarian Abscess

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Introduction

Ovarian abscess due to *Salmonella* is rare. Very few cases have been reported in the literature. Most cases are due to non-typhoidal *Salmonellae*. We report a case of Right ovarian abscess due to *Salmonella typhi* and discuss the need for completing 2 weeks' treatment for enteric fever to avoid development of abscesses at distant sites.

Case History

Healthy unmarried 29-year-old female presented with complaints of non-cyclical dull aching pain on and off for 6 months in supra pubic region and Right iliac fossa. Pain was not associated with fever, vomiting, loss of weight, or appetite. There were no complaints related to urinary tract. Her periods were regular with normal menstrual flow. There was no significant past history except history of high

grade fever lasting 15 days 1 year back for which she was given injections and tablets for a week.

On examination, patient was conscious and afebrile. There was no pallor, icterus, pedal edema. Vital signs were stable. Systemic examination was normal. The abdomen was soft on examination. A firm mass of 12 weeks' size was palpable in supra pubic region. As patient was unmarried, per vaginal examination was not done. On per rectal examination, uterus was of normal size, but slightly deviated to left. Firm to cystic mass could be felt through Right parametrium and midline. Preliminary investigations revealed Hemoglobin of 10 g/dl, serum urea 10.4 mg/dl, creatinine 0.6 mg/dl, bleeding time 2′20″, Clotting time 4′20″, and platelet count 3,00,000/mm^3. Liver and Thyroid Function Tests were normal.

On Ultra sonogram, uterus was anteverted and normal. Well circumscribed hypoechoicrounded space occupying lesion located in Right adnexa measuring 10.4 × 9.3 cm was seen. Lesion was cystic, rounded with low level internal echoes and multiple-calcified nodules along periphery. Lesion was abutting on lateral wall of uterus. Ovary could not be made out separately. Left ovary was normal. On color Doppler, lesion was found to be non-vascular.

Diagnosis of adnexal complex cystic well circumscribed lesion probably germ cell tumor was made. She was referred to Oncologist who advised screening for tumor markers and MRI. Tumor makers βHCG, CA, AFP, LDH, and CEA were normal. MRI abdomen showed unilocular thick-walled (4.4 cm) Right ovarian cyst with papillary solid fat components and calcification. There was no Para aortic lymphadenopathy. These features favored cystic teratoma. Oncologist advised laporotomy and unilateral oophorectomy.

On laparotomy (Fig. 1), large tumor occupying supra pubic region was found on Right side. Tumor was adherent with omentum superiorly, and it extended onto pouch of Douglas inferiorly. It was pushing the uterus anteriorly and adherent to opposite lateral pelvic wall. 5 ml peritoneal fluid was aspirated from pouch of Douglas. While dissecting tumor, 100 ml of yellowish pus like material was drained and sent for Bacterial culture, Cytology, and PCR for *Mycobacterium tuberculosis.* Two filaments of hair and fatty tissue were seen in the mass. Right salpingo oophorectomy was done. Left salpinx was also distended with pus and friable. It was also excised after getting consent from relatives. Left ovary was cystic and wedge biopsy was taken. After perfect hemostasis, abdomen was closed in layers. She was initially given Cefaperazone-Sulbactam 1 g IVbd and metronidazole 400 mg IVqid post operatively.

Pus culture grew *Salmonella enterica* serovar *Typhi.* Antibiotic Sensitivity was done by Kirby–Bauer method, and the organism was sensitive to Ciprofloxacin, Levofloxacin, Nalidixic acid, Ceftriaxone, and Imipenem. She was immediately started on Ciprofloxacin 500 mg bd IV. Serum Widal and carrier screening for *S. Typhi* were done. Her Widal was positive with both TO and TH in a titer of 1 in 320 dilution. Both urinary and fecal screening for *Salmonella* were negative. The patient was given a full course of Ciprofloxacin 500 mg bd for 14 days. Serum widal was repeated after 3 months and was negative. Urinary and fecal carrier screening were repeated after 3 months, and results were negative. PCR for *M. tuberculosis* was negative. Histopathology report was benign cystic teratoma with xanthomatous Tubo-ovarian abscess on Right side. Biopsy of Left ovary was reported as normal. Patient was advised follow-up screening for *Salmonella* carrier status every 3 months for 1 year.

Discussion

Salmonella Ovarian abscesses are a rare occurrence. There are very few cases of *Salmonella* Ovarian abscesses reported in the world. One was reported from Turkey (Non typhoidal *Salmonella*) in a SLE patient in 2013 [1], another from Slovenia (*Salmonella stayleville*) in 2011 [2], one from Spain (*Salmonella manhattan*) in 2007 [3], and a few more. Many reported cases were abscesses due to Non-typhoidal *Salmonellae.* In our case, ovarian abscess was due to *S. Typhi*. To the best of our knowledge, there are no reported cases of ovarian abscess due to *S. Typhi* till now. However, abscesses due to *S. Typhi* have been reported from other sites from India [4], and the mode of infection is probably hematogenous seeding.

In this patient, who was taken up for excision of dermoid cyst, isolation of *S. Typhi* from pus was totally unexpected. History of high-grade fever 1 year back is

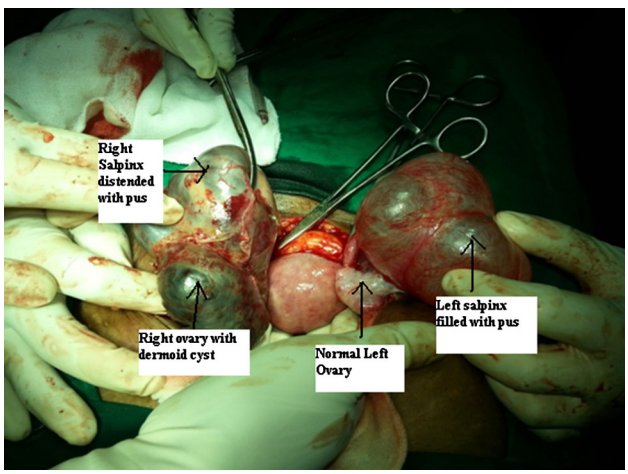

Fig. 1 Laparotomy photograph of tubo ovarian abscess

most probably enteric fever and ovarian abscess may have developed due to incomplete (<14 days) antibiotic treatment for initial *Salmonella* infection. Pre-existing dermoid cyst might have acted as a nidus for super infection. Bacteremia and hematogenous seeding does occur in Enteric fever in all patients. But everyone do not develop focal abscess. Incomplete antibiotic treatment and pre-existing lesion jointly have contributed to development of ovarian abscess in this case.

Conclusion

It is mandatory to complete the antibiotic treatment for an initial attack of enteric fever to prevent complications like this.

All Non-lactose fermenting Gram-Negative isolates from abscesses should be fully characterized (sent to referral Laboratories for confirmation if needed) to rule out sinister *Salmonella* infection. Once identified, it is again mandatory to complete the 2 weeks' antibiotic treatment to prevent a relapse. Also, patient should be followed up for at least 1 year.

Compliance with ethical requirements and Conflict of interest The authors Esther Mary Selvam, Sridevi TA, Maya Menon, Rajalakshmi, Lakshmi Priya, and Sandhiya declare that they have no conflict of interest. No identifying information of the patient is included in the article. No animal studies were done.

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