Bilateral salmonella salpingo-oophoritis

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Summary: A previously healthy nulliparous caucasian female presented with lower abdominal pain and a history of diarrhoea and vomiting for 2 weeks. Repeated stool examinations and blood culture were negative. A lump in the lower abdomen became more apparent over the next 2 weeks and a subsequent laparotomy revealed bilateral tubo-ovarian abscess formation. One ovary which was endometriotic and both the tubes were excised and the pus yielded a heavy growth of *Salmonella stanley*.

Introduction

Salmonella food poisoning is usually a self-limiting condition localized to the gut. Treatment essentially consists of rehydrating the patient. Specific antibiotics are not used as it is believed that antibiotic therapy prolongs the duration of illness (Bowmer, 1964). Rarely, especially in extremes of age, salmonellae may be invasive and produce bacteraemia by escaping into the blood stream. Rarer still is the incidence of focal abscesses in distant organs due to these salmonellae. In these circumstances treatment with antibiotics, chosen according to laboratory sensitivity testing, is imperative (Christie, 1974).

Magliulo *et al.* (1982) reported a case of lower right abdominal pain with pyrexia in a 30 year old nullipara. The patient remembered no previous symptom other than an episode of enterocolitis 6 months before. At surgery a mass with suppurative right ovarian cyst, right tube and the appendix was removed. The pus grew *Salmonella brandenburg*. We report a case of young nullipara who had bilateral pelvic abscess formation involving both tubes and ovaries and small gut, following an episode of diarrhoea and vomiting, the like and extent of which to our knowledge has not been reported previously. The pre-existing condition in both cases was ovarian endometriosis.

Case history

A 28 year old nulliparous insurance clerk presented with a history of severe bloody diarrhoea and vomiting for 2 weeks following a 'take-away' meal. The initial frequency was about twelve times a day but it settled

somewhat over the days preceding admission to four times a day.

Her other complaints were colicky lower abdominal pain worse on defaecation and mid-cycle vaginal bleeding. Her previous menstrual cycles were normal. She was not taking oral contraceptive pills and there was no history of vaginal discharge or dyspareunia.

On examination she looked pale and dry, with a radial pulse of 120/minute, regular, and a blood pressure of 130/80 mm Hg. The lower abdomen was distended and tender and there was a possible mass in the area of the uterus. There was no guarding or rigidity. Percussion note was tympanitic. Bowel sounds were audible. Pelvic examination confirmed vaginal bleeding, the cervix was nulliparous and not tender, and the uterus was enlarged but not palpable bimanually.

Preliminary investigation revealed a haemoglobin of 13.4 g/dl, a white cell count of $19.1 \times 10^9/l$ with 92% polymorphs. Serum urea was 12.4 mmol/l, creatinine was 116 mmol/l, sodium was 130 mmol/l and potassium 3.8 mmol/l. Bacteriological cultures of faecal specimens were negative as were blood and urine cultures. The chest radiograph showed slight pulmonary collapse at the right base and the abdominal radiograph showed multiple small fluid levels suggesting peritoneal irritation and possible ascites.

She was initially managed with intravenous fluids and her diarrhoea settled appreciably over the following week. However, the lower abdominal pain persisted and a tender mass became more obvious. Abdominal examination at this stage revealed a cystic pelvic mass, 24 weeks pregnancy size. Vaginal examination gave the impression that there were bilateral ovarian cysts although the masses were difficult to separate from the uterus. Abdominal ultrasound showed multiloculated cysts with solid areas in the

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region of the uterus. The possibility of malignant tumour was suggested. A laparotomy was performed a month after her first admission.

Bilateral tubo-ovarian masses were found adherent behind the uterus and obscuring it. The small bowel was stuck to the abscess capsule. There was no perforation. A right salpingo-oophorectomy and a left salpingectomy were performed. The left ovary which was recovering from an ovarian abscess was preserved. The right tubo-ovarian mass measured $10 \times 8 \times 3$ cm and cut section showed several cysts up to 5 cm in diameter with fibrous walls and a granular brown internal lining. Both fallopian tubes were grossly swollen and contained pus. Histologically the cysts in the right ovary were endometriotic cysts, and there was a bilateral pyosalpinx. The uterus was normal. In view of the pelvic sepsis, she was put on a combination of cefuroxime and metronidazole to cover the immediate post-operative period.

Her recovery was uneventful. The pus from the tubo-ovarian abscesses on bacteriological culture yielded a heavy growth of *Salmonella stanley*. A post-operative stool culture also grew the same organism. She was treated then with a course of intravenous amoxycillin for 5 days followed by cotrimoxazole orally for 2 weeks after being sent home. The organism was sensitive to both antibiotics.

Four weeks after operation she was perfectly well in herself and pelvic examination was entirely normal with mobile tissues. Follow-up stools examined were negative.

Discussion

It seems likely that the salmonella was contracted from food consumed about 2 weeks before admission and the episodes of diarrhoea and vomiting were related to it. She did not have any obvious bacteraemic symptoms and the question arises as to how the salmonella spread to the uterine adnexae. Two possibilities suggest themselves. The inflamed bowel wall may have adhered to an ovary and allowed direct extension of the infection. It is more probable, however, that spread was via the blood-stream following transient and undetected bacteraemia early in the course of

Figure 1 Histological section of wall of ovarian cyst showing endometrial type glands and stroma. H & E $\times 400$.

events. The endometriotic ovaries with the collection of stagnant blood would have been a likely site for the salmonellae to establish themselves. In this context it is interesting to note that Boles *et al.* (1983) reported a case of post-traumatic chronic subdural haematoma, i.e. a collection of stagnant blood at another site, infected with *Salmonella sandiego* and reviewed four other cases of salmonella infected subdural haematomas.

Whichever mechanism pertains, this case highlights a very sinister complication of salmonella food poisoning. Indeed, localized extra-intestinal infection complicating enteric salmonella infection may be more frequent than is recognized. The time interval between the symptoms of food poisoning and the presentation of complications may lead to a failure to link the two events aetiologically. Furthermore, Gram negative rods in pus, especially in mixed growth, are often dismissed uncritically, possibly allowing salmonellae in abscesses to remain unrecognized.

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