

Tuberculosis in pregnancy—Diagnostic dilemma

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ABSTRACT

The worldwide incidence of tuberculosis (TB) is rising and is linked to immigration patterns and the rise in incidence of HIV. Extra-pulmonary disease, in particular, can lead to diagnostic dilemmas. Because the total number of cases of TB in pregnancy in developed countries is small and often concentrated in specific urban areas with large immigrant populations, clinicians may rarely encounter the problem. This paper provides actual clinical experience of one recent case.

Keywords: Tuberculosis (TB); Pregnancy; Extra-Pulmonary TB; Abdominal Tuberculosis; Abdominal Tuberculosis in Pregnancy; Pregnancy and Tuberculosis

1. INTRODUCTION

Tuberculosis is caused by *Mycobacterium tuberculosis* and usually causes pulmonary disease. Extra-pulmonary disease such as Gastro-intestinal TB can give rise to diagnostic dilemmas as symptoms can be non-specific and demonstrate considerable overlap with other more common conditions and this applies particularly in pregnancy. The worldwide incidence of tuberculosis (TB) is increasing, largely related to the prevalence and treatment of HIV infection. It follows that new cases of the disease in developed countries are frequently in immigrants from parts of the world where TB and HIV are endemic. In 2010, 13.6 per 100,000 cases were reported in the United Kingdom (UK) and of these 39% (42 per 100,000) were in London where the immigrant population is high [1]. The incidence in pregnant women has been demonstrated to be 4.2 per 100,000 maternities by the UK Obstetric Surveillance System (UKOSS). Their report highlights that tuberculosis in pregnancy is mainly limited to ethnic minority groups and that, in pregnancy, extra-pulmonary disease is equally as prevalent as pulmonary TB [2].

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There were two deaths reported secondary to TB in pregnancy in the latest UK triennial Confidential Inquiry into Maternal Deaths [3] and three deaths in the previous report [4]. These deaths each had diagnostic delay as a major contributing factor. Because the total number of cases of TB in pregnancy in developed countries is small and often concentrated in particular urban areas with large immigrant populations, clinicians may rarely encounter both pulmonary and extra-pulmonary TB in pregnancy and may not consider it in their differential diagnosis potentially leading to delayed treatment. In this paper, we describe the clinical experience of one recent case.

2. CASE REPORT

An apparently low risk 32-year-old primigravid woman originally from India presented at 33 weeks gestation with a seven day history of gradually worsening abdominal pain. On examination, general abdominal tenderness was demonstrated with intact membranes. She had a persistently elevated temperature $>38^{\circ}\text{C}$ and a tachycardia >100 beats per minute. Fetal assessment showed an uncomplicated baseline tachycardia in keeping with the maternal pulse rate. Chorioamnionitis was suspected as a primary diagnosis and the patient was commenced on regular paracetamol and intravenous cefuroxime and metronidazole. Because of diagnostic uncertainty, a period of observation ensued. Urine microscopy was negative for infection and the full blood count, blood cultures, liver and renal functions were all within normal limits. Her temperature continued to fluctuate despite a change of intravenous antibiotics. Although her white cell count remained normal, the C reactive protein rose from 54 to 92 over a period of 3 days. On the seventh day of admission, a chest x-ray and a ventilation perfusion (VQ) scan were organised because of progressively worsening dyspnoea. Chest x-ray was normal but the VQ scan demonstrated a high probability of pulmonary embolus and treatment with low molecular weight heparin was commenced.

Despite a multi-disciplinary approach, no conclusive

diagnosis was reached with regard to the abdominal pain. An MRI scan of the abdomen and pelvis showed a significant amount of fluid in the both paracolic gutters. Cytology of aspirated peritoneal fluid failed to show any pus cells or organisms on gram stain. However a Ziehl-Neelsen stain was not performed.

During admission, the fetal condition was monitored with interval ultrasound and daily cardiotocography. Unfortunately, the patient deteriorated despite various antibiotic regimes and ongoing multidisciplinary input. Because of this deterioration, a caesarean section was performed on day 20 at 36 weeks' gestation. During the operation, the peritoneum was noted to be thickened and the peritoneal fluid thick and white. There was a loculated abscess at the root of the mesentery near the ilio-caecal region. The placenta, uterus, fallopian tubes and ovaries appeared entirely normal and the liquor was clear. Fetal condition was good but the baby was transferred to the special care baby unit for observation only. Several biopsies of suspicious areas were taken throughout the pelvis and abdomen, and at histology numerous granulomas were demonstrated in the peritoneum, omentum and small bowel mesentery. These granulomas were shown to consist of both epithelioid cells and multinucleated giant cells with central caseation necrosis. Culture of the peritoneal fluid was positive for *Mycobacterium tuberculosis*.

Further investigations including a repeat chest x-ray and three sputum samples were carried out after delivery to rule out associated pulmonary TB and all were negative. She commenced a six-month course of treatment with rifampicin, ethambutol, pyrazinamide and isoniazid for six months as recommended by the microbiologist and a rapid symptomatic recovery ensued. Of note, the patient developed puerperal psychosis in her second post natal week and was treated by the psychiatrists. A CT scan of the head did not reveal any signs of TB meningitis.

3. DISCUSSION

This paper discusses the case of a recent immigrant from India in apparent good general health without any personal history of TB or any sources of contact. As in many cases of TB in pregnancy reported in the UK, there was diagnostic delay perhaps due to lack of awareness of the disease amongst clinicians.

The origin of infection can be from the gastrointestinal tract, fallopian tubes or lymphatics. Abdominal TB can involve both the peritoneum and the pelvic and abdominal organs. Gastrointestinal tuberculosis is the sixth commonest site of extra-pulmonary disease [5]. Peritoneal tuberculosis can occur in three possible forms: a wet type presenting with ascites, a type with adhesions and/or a

fibrotic form with omental thickening and loculated ascites. The ilio-caecal region is frequently affected [6-8] and this can present with a palpable abdominal mass, bowel obstruction or perforation and malabsorption.

The diagnostic criteria for abdominal TB includes any one of the following [5]: tubercles with caseation on histology, typical operative appearance with positive histology for tuberculosis from mesenteric lymph nodes, animal inoculation or tissue culture growing *Mycobacterium tuberculosis* or histological identification of acid fast bacilli in a lesion. In this case, we were able to demonstrate tubercles with caseation on histology and culture evidence of *Mycobacterium tuberculosis* from peritoneal fluid.

4. CONCLUSION

Tuberculosis is an important diagnosis to be considered in high risk women with a non specific presentation of abdominal pain in pregnancy. A lack of exposure to such clinical cases may lead to diagnostic delay and unnecessary maternal morbidity and mortality.

REFERENCES

- [1] Pedrazzoli, D., Kruijshaar, M., Anderson, L. and Abubakar, I. (2011) Tuberculosis section, health protection services, HPA. Tuberculosis in the UK: 2011 report. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/13/17131791612
- [2] Knight, M., Kurinczuk, J., Nelson-Piercy, C., Spark, P. and Brocklehurst, P. (2009) Tuberculosis in pregnancy in the UK. *An International Journal of Obstetrics and Gynaecology*, **116**, 584-588.
- [3] Lewis, G. (2011) Saving mothers' lives: Reviewing maternal deaths to make motherhood safer: 2006-2008. *An International Journal of Obstetrics and Gynaecology*, **118**, 1-203. doi:10.1111/j.1471-0528.2010.02847.x
- [4] The Confidential Enquiry into Maternal and Child Health (2007) Saving mothers' lives: Reviewing maternal deaths to make motherhood safer 2003-2005. *The Seventh Report on Confidential Enquiries into Maternal Deaths in the United Kingdom*, CEMACH, London.
- [5] Paustian, F.F. (1964) Tuberculosis of the intestine. In: Bockus, H.L., Ed., *Gastroenterology*, 2nd Edition, W.B. Saunders Co., Philadelphia, 311.
- [6] Bhansali, S.K. (1977) Abdominal tuberculosis. Experiences with 300 cases. *American Journal of Gastroenterology*, **67**, 324-337.
- [7] Prakash, A. (1978) Ulcero-constrictive tuberculosis of the bowel. *International Surgery*, **63**, 23-29.
- [8] Hoon, J.R., Dockerty, M.B. and Pemberton, J. (1950) Ileocaecal tuberculosis including a comparison of this disease with non-specific regional enterocolitis and non-caseous tuberculated enterocolitis. *International Abstracts of Surgery*, **91**, 417-440.