CASE REPORT

Simultaneous rupturing heterotopic pregnancy and acute appendicitis in an in-vitro fertilization twin pregnancy

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The presentation of acute abdominal pain in young women is not an unusual occurrence in casualty and gynaecology departments. Both acute appendicitis and ectopic pregnancy have to be considered and investigated, as these two conditions are accepted as the most common surgical causes of an acute abdomen. Difficulties in correctly identifying the cause of the pain can be hazardous to the patient and care needs to be taken in obtaining a prompt and accurate diagnosis enabling the most appropriate management. The case report presented here describes the extremely unusual occurrence of both these acute conditions happening simultaneously with the added complication of an ongoing twin pregnancy and it highlights the need to look beyond the most obvious diagnosis and always to expect the unexpected.

Key words: acute appendicitis/heterotopic pregnancy/in-vitro fertilization

Introduction

The presentation of acute abdominal pain in pregnancy, particularly in the first trimester, can lead to many difficulties in achieving an accurate diagnosis. Firstly some of the routine surgical investigations and procedures carry a risk to the fetus, but any risk has to be balanced against the risk of any delay in making the correct diagnosis as this can be equally, if not more, harmful to both the mother and the fetus.

Ectopic pregnancy and appendicitis are two of the most common causes of an acute abdomen in young women and during pregnancy they are conditions associated with potentially high morbidity and mortality. The occurrence of ectopic pregnancy and appendicitis during the same pregnancy is unusual; it is extremely rare for both of these conditions to occur simultaneously, but in conjunction with a viable intrauterine pregnancy has never to our knowledge been reported in the literature.

Case report

A 32 year old nulliparous woman was admitted on the 29 October, 1997 to the Emergency Room at the Liverpool Women’s Hospital. She presented with a 3 day history of right iliac fossa pain, vomiting and diarrhoea. She had a 5 year history of primary infertility secondary to tubal damage and was undergoing in-vitro fertilization (IVF) treatment. Nine weeks prior to her admission she had had successful transfer of three embryos resulting in an ongoing twin pregnancy, which had been confirmed by a transvaginal ultrasound scan performed earlier in the pregnancy.

On examination she was found to have a pulse rate of 80 beats/min and a blood pressure of 130/90 mm Hg; she was mildly pyrexial at 37.5°C. Abdominal examination revealed diffuse lower abdominal tenderness with guarding and rebound mainly in the right lower quadrant which was suggestive of peritonism. General examination was otherwise unremarkable.

Investigations on admission revealed a haemoglobin of 12.2 g/dl and a white cell count of 8.1×109/l. Her pregnancy test was, as expected, positive and a transvaginal ultrasound scan confirmed the presence of a viable intrauterine twin pregnancy dated at ~10 weeks’ gestation. The left ovary appeared normal but the right adnexa was obscured by fluid filled bowel. A small amount of free fluid around the right adnexa was also noted.

She was admitted to the gynaecology ward for observation with a differential diagnosis of acute appendicitis or heterotopic pregnancy. Over the subsequent 24 h she developed a swinging pyrexia and her pain persisted. Following review by her consultant a provisional diagnosis of appendicitis or tubo-ovarian abscess was made and an urgent surgical opinion requested. The Surgical Senior Registrar from the neighbouring Royal Liverpool University Hospital reviewed the patient, suggesting the most likely diagnosis for this patient’s symptoms to be acute appendicitis. Repeat blood tests showed a fall in haemoglobin to 10.0 g/dl but a stable white cell count of 8.4×109/l. An urgent laparotomy was arranged.

The laparotomy was performed by the gynaecology team in a routine manner through a Pfannenstiel incision. A general surgeon was also in attendance. She was found to have 500 ml of blood free in her pelvis with a perforated right-sided tubal pregnancy; the right ovary was also found to be involved in an inflamed appendix mass. Following a routine right salpingectomy the ovary was dissected free of the bowel and a standard appendectomy performed.

Post-operatively the patient made an excellent recovery, being discharged 6 days after completing a course of antibiotics. Histology confirmed both a ruptured tubal pregnancy and an acutely inflamed appendix with abscess formation.

The twin pregnancy continued without any significant
complication although the patient had to be admitted on a number of occasions with hyperemesis gravidarum. This was treated conservatively with anti-emetics and fluid replacement. She regularly attended antenatal clinic at 20, 24, 28, 32 and 36 weeks’ gestation where the twins’ growth was closely assessed by serial ultrasound scanning. She was successfully delivered of dizygotic male twins at 37 weeks’ gestation by Caesarean section; the delivery weights were 2.08 and 2.70 kg. Her postnatal recovery was unremarkable.

Discussion
Currently ectopic pregnancy accounts for 4.2% of all maternal deaths in the UK (DHSS, 1995). It therefore remains a significant cause of death in young women. In cases of assisted conception using both IVF and embryo transfer techniques, the complication of ectopic/heterotopic pregnancy is relatively common, reportedly occurring in 1—3% of these pregnancies (Karande et al., 1991; Rizsk et al., 1991). This compares to an incidence of 1 in 4000 to 7000 non-IVF pregnancies. In comparison, the incidence of appendicitis occurring during pregnancy, the most common non-obstetric condition requiring surgery during pregnancy, has an incidence of 1 in 2000 pregnancies (James et al., 1995).

The occurrence of a simultaneous heterotopic pregnancy which was undergoing rupture and acute appendicitis has not to our knowledge been previously reported in the literature. A case report by Akman et al. (1995) described a woman presenting with a perforated appendix and an ectopic pregnancy following IVF and embryo transfer. The appendicitis was treated surgically and the ectopic at a later stage by the administration of methotrexate but in this case there was no ongoing pregnancy and the two conditions did not present simultaneously. In another case report (Gaudier et al., 1995) of a 31 year old woman who presented with a combined intrauterine twin pregnancy and an interstitial ectopic pregnancy after IVF, the patient underwent surgical repair of the ectopic and went on to have a successful delivery of the twins at term.

The case presented here demonstrates the potential difficulties in diagnosing correctly the cause of an acute abdomen during pregnancy. Neither condition was clearly identified prior to the surgery, especially as both were occurring on the same side of the abdomen. There was a higher index of suspicion that she was suffering from appendicitis, however, mainly because of the swinging pyrexia, right iliac fossa pain and altered bowel habit (diarrhoea). We would have expected a raised white cell count, reflecting the ongoing infection, but surprisingly this did not occur. Care therefore needs to be taken in diagnosing infection solely by the white cell count as this can also be marginally raised by pregnancy. The drop in haemoglobin during her admission was not highlighted prior to surgery, probably due to the fact that a provisional diagnosis and the surgical management of acute appendicitis was rapidly implemented. In hindsight, this drop in haemoglobin was indicating a significant haemorrhage which might have alerted the medical staff to the possibility of a rupturing heterotopic pregnancy. Possibly the ectopic pregnancy was the more life-threatening of the two conditions but fortunately, as both of the surgical emergencies could be appropriately treated in the same manner, i.e. by laparotomy, the diagnosis of the dual pathology was not missed. This case highlights the need to consider surgery in order to make a diagnosis, particularly when presented with non-specific symptoms or signs and investigation results that are also unclear.

As the initial suspicion of ectopic pregnancy was superseded by the diagnosis of acute appendicitis, the more routine course of investigation was not followed. Confirmation of the diagnosis of one or other of the conditions could have been made by performing a laparoscopy, either microlaparoscopy or classic laparoscopy, prior to proceeding to an open laparotomy. If ectopic had been the sole diagnosis then it might have been possible to complete the surgery via the laparoscope. Although the use of ultrasonography helped to confirm the presence of an intrauterine pregnancy, it failed to identify the ectopic and little emphasis was placed on the presence of free fluid in the pelvis indicating the possibility of haemorrhage. In addition it is now common practice for general surgeons to use abdominal ultrasound scanning to aid their diagnosis of appendicitis; however, this was not requested in this case and no clear abnormality was seen suggesting an appendix abscess.

The possibility of multiple pathology, and in particular non-obstetric causes for abdominal pain, must always be considered in a patient with an acute abdomen in pregnancy, particularly if the patient has recently undergone assisted reproductive therapy. The presence of a viable intrauterine pregnancy on ultrasound scan in such circumstances, while being reassuring to both the patient and medical staff, must not lead to complacency as concomitant and potentially life-threatening conditions may also be present. In cases where tubal damage is known to have occurred, there should be a suspicion that a tubal pregnancy has occurred, particularly when the patient has also undergone assisted reproduction. If the tubal pregnancy is confirmed in these cases, there is little to be gained from conservative management as the Fallopian tubes are undoubtedly damaged and the standard salpingectomy, either by laparoscopy or laparotomy, is an appropriate treatment. Some gynaecologists also advocate the removal of the remaining tube, particularly if that also seems to be damaged.

References


Received on July 1, 1998; accepted on November 4, 1998