Findings that shed new light on the possible pathogenesis of a disease or an adverse effect

Miscarriages following caesarean section-induced extra-uterine adhesions

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Summary

A Caucasian lady in her 30s presented with repeated miscarriages following a previous caesarean section. Following ongoing pain and bleeding, and inconclusive imaging, a scan undertaken after her second miscarriage suggested a possible communication through the uterine wall. Subsequent laparoscopy revealed a dense band of adhesions starting from lower segment of uterus and extending all the way to anterior fundus adherent to the anterior abdominal wall. To our knowledge, this is the first published case of repeated miscarriages following extra-uterine adhesions post caesarean section. Although causality cannot be proven, this is an important and potentially treatable diagnosis to consider.

BACKGROUND

A recent publication discussed the unusual phenomenon of the uterus becoming adherent to the abdominal wall following caesarean section.¹ The case series discussed women who were found to have uterine adhesions during investigation for secondary infertility and/or pain. Evidence suggests that breaking down adhesions can relieve symptoms, highlighting the importance of considering this as a potential cause for recurrent miscarriages.

To date there has been an abundance of evidence in the literature concerning intra-uterine adhesions (or Asherman's syndrome) and the link with infertility and miscarriage. Despite this, there is a lack of evidence linking extra-uterine adhesions to miscarriages.

CASE PRESENTATION

A Caucasian lady in her 30s with no significant medical problems initially fell pregnant without difficulty. She developed obstetric cholestasis, and underwent an emergency caesarean section after a failed induction. At the time of the procedure, moderate pelvic endometriosis was noted.

Six months later, she fell pregnant again. This time she suffered with symptoms of contracting abdominal pains and bleeding early in her pregnancy and was subsequently referred to the early pregnancy assessment clinic. After a series of scans suggesting a possible molar pregnancy, she was found to have had a missed miscarriage. Histological assessment confirmed a non-molar pregnancy. Subsequent evacuation of retained products of conception (ERPC) was uneventful, at which time an anteverted uterus was noted on bimanual examination, but with no mention of it being fixed.

After her miscarriage, the lady had consulted her general physician due to irregular bleeding patterns. She

was trying to conceive at this time, and fell pregnant shortly after the consultation. At 8 weeks into her pregnancy, she reported significant abdominal pains, but a scan at this time showed a viable intrauterine pregnancy. Three weeks later, after her pains had settled, a scan confirmed a further missed miscarriage. Furthermore, the uterine wall was notably very thin within the right lateral aspect of the fundus with the appearance of a possible communication through the uterine wall in this region.

INVESTIGATIONS

To investigate the radiological findings further a laparoscopic-guided ERPC was arranged. A bulky uterus adherent to the anterior abdominal wall and extensive endometriosis was again noted. A chocolate cyst was noted on the left ovary, which was drained. The findings were discussed with the patient and it was arranged for her to come back to theatre for laparoscopic adhesiolysis and a tubal dye test.

OUTCOME AND FOLLOW-UP

At laparoscopy a dense band of adhesions starting from lower segment of uterus and extending all the way to anterior fundus of the uterus which was adherent to the anterior abdominal wall (figure 1). Adhesiolysis was undertaken with a band cut away from the anterior abdominal wall. In contrast to expectations, the band of adhesions was found not to communicate with the uterine cavity. The ovaries were found to be normal and the tubes patent. The patient has had no further presentations since this time.

DISCUSSION

Miscarriage secondary to adherence of the uterus to the anterior abdominal wall following caesarean is not

Figure 1 Adhesion from anterior uterine wall extending to anterior abdominal wall.

currently a recognised phenomenon. Although it cannot be proven that the adhesions are the causative factor for the miscarriages in this patient, they appear to be the most likely culprit. We postulate that the anatomical distortion of the uterine cavity and limited mobility may have resulted in reduced uterine stretching and the subsequent miscarriage.

Endometriosis is known to be a risk factor for infertility, although the link with miscarriage is still under debate. This patient was noted to have endometriosis at caesarean section in her first pregnancy. However, she conceived without difficulty and did not suffer with abdominal pains during this pregnancy. She fell pregnant again only 6 months after delivery, so it is unlikely that her endometriosis would have progressed significantly at this time. The significant pains suffered early in her subsequent pregnancies, but not in her first pregnancy, could also be attributed to the fixed uterus.

This report adds further information to the previously published case series which discussed women with uterine adhesions presenting with pain and/or infertility, or found incidentally.¹ In this previous report it was noted that the incidence of this finding appears to be increasing, possibly due to a rising rate of caesarean, peritoneal closure techniques at caesarean section or simply increased rates of diagnosis.

Currently the Royal College of Obstetricians and Gynaecologists and the National Institute of Clinical Excellence (NICE) advise not closing the peritoneum.^{2 3} In their caesarean section clinical guidelines, NICE advise that neither the visceral nor the parietal peritoneum should be sutured at caesarean section because this reduces operating time and the need for postoperative analgesia, and improves maternal satisfaction.³

However, this remains to be a controversial point among obstetricians. Some argue that the peritoneum

will heal itself, and adding sutures as a foreign material will increase the chance of inflammation and necrosis. Alternatively natural healing occurs much faster than the time taken for the uterus to return to 'prenatal' size, and the gravid-sized uterus is likely to impose on the healing process thereby increasing the chance of adhesions.

Indeed, this was discussed in a recent meta-analysis where adhesion formation was significantly more likely following Stark's caesarean (non-closure of the peritoneum) versus modified Stark's caesarean (closure of the peritoneum) over 12 studies; pooled OR 4.69, 95% CI 3.32 to 6.62; $p < 0.01$.⁴ Further studies are required to confirm this finding, and to determine whether certain surgical closure techniques may be responsible.

Recurrent miscarriage, infertility and pain are all extremely distressing for the patient. In patients presenting with any of these following a previous caesarean section, the diagnosis of a uterus adherent to the abdominal wall should be considered. As the previous case series suggests, surgically correcting this abnormality may lead to pain relief and/or further successful pregnancies. Further studies are required to provide more information on what specific surgical or patient factors may lead to this complication of caesarean sections, and thereby learn how we may be able to reduce it.

Learning points

- ▶ Non-closure of the peritoneum at caesarean section may lead to an increased risk of extra-uterine adhesions.
- ▶ Consider the diagnosis of a uterus adherent to the abdominal wall in patients presenting with pain, infertility or recurrent miscarriage following a previous caesarean section.
- ▶ Surgically correcting this abnormality may lead to pain relief and further successful pregnancies.

Competing interests None.

Patient consent Obtained.

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