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CASE REPORT

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Recognition of uterine perforation during Thermachoice endometrial ablation: the importance of safety devices in second-generation ablative techniques

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Abstract A 31-year-old woman was undergoing a Thermachoice endometrial ablation. Her only past medical history of note was that she had undergone a caesarean section. Hysteroscopy prior to the procedure revealed a normal uterine cavity. A Thermochoice endometrial ablation procedure was commenced but was abandoned after the pressure measurement safety device revealed a problem. On repeat hysteroscopy a uterine perforation was noted at the site of the caesarean section scar. Without the safety mechanism the procedure would have continued and could have resulted in intra-abdominal injury.

Keywords Second-generation ablative techniques · Endometrial ablation · Perforation · Safety devices

Introduction

Surgical alternatives to hysterectomy for menorrhagia have been evolving since the end of the 1960s. The second-generation techniques of endometrial ablation, such as Thermachoice, are increasing in popularity due to their short learning curve; however, as it is a blind procedure, there is a potential for intra-abdominal injury. Therefore, this illustrates the importance of safety devices on these devices. We report a case report which illustrates the importance of these safety devices.

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Case report

A 31-year-old woman presented for a Thermachoice ablation for treatment of her dysfunctional uterine bleeding. Her past medical history of note was that she had undergone an elective lower segment caesarean section 3 years previously at 39 completed weeks of gestation for a posterior low-lying placenta. At caesarean section the posterior placenta was removed with ease and there were no post-operative complications.

Prior to the ablation, she had undergone a transvaginal scan in the gynaecology clinic. This revealed a normal-sized uterus with an 8-cm cavity, with no polyps or fibroids present. There was no apparent thinning of the myometrium over the lower part of the uterus.

Before the Thermachoice ablation was performed, the uterine cavity was inspected with a rigid gas hysteroscopy, as is our normal procedure in all cases. This revealed a normal cavity. The Thermachoice balloon catheter was then inserted with ease into the cavity after priming it as recommended; however while filling the balloon catheter with 5% dextrose it was noted that 30 ml had been inserted, and while the pressure had initially started to rise, the pressure was failing to continue to rise above 40 mm/Hg. The balloon was deflated and removed and the woman re-hysteroscoped. At this time a uterine perforation at the site of the old caesarean section scar was noted. There was no active bleeding, so the procedure was abandoned and the patient was commenced on antibiotics and observed for 24 h. We repeated the procedure 3 months later. At that time the endometrial cavity was normal and the procedure was performed with no complications.

Discussion

Surgical alternatives to hysterectomy for menorrhagia have been evolving since the end of the 1960s. The second-generation techniques of endometrial ablation are increasing in popularity due to their short learning curve [11]; however, as it is a non-visual technique, serious injuries can occur [2]; these have ranged from cervical tears to laparotomy for visceral injury.

A study examining the complication rates of microwave endometrial ablation showed that it has a perforation rate of 0.26% and a laparotomy rate of 0.07%. Studies examining Thermachoice ablation show a perforation rate of 0.17% and laparotomy rate of 0.02%. Despite this complication rate, no case reports of uterine

perforation with a balloon ablative technique has been reported, and this is probably due to under-reporting.

To overcome this potential problem we perform a hysteroscopy prior to insertion of the Thermachoice balloon to ensure that the device is inserted into the uterine cavity; however, this did not help in this case. Inadvertent uterine perforation may have occurred either at the time of the initial hysteroscopy and been missed, or occurred while inserting the Thermachoice balloon catheter.

Uterine perforation has also been reported to occur at a rate of 1.7% in operative hysteroscopies [3], 0.05% of first-trimester and 0.32% second-trimester termination of pregnancies [4].

If the Thermachoice had not had a pressure indicator to indicate a problem, then the ablation would have proceeded which may have resulted in trauma to abdominal viscera. We do not know when the perforation occurred, i.e. at instrumentation, during the hysteroscopy or when the Thermachoice balloon was inflated. What is reassuring is that the safety devices in place alerted us to the problem and therefore we avoided any further complications.

This case emphasises the importance of safety devices on these second-generation techniques to try and reduce complications.

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