Hysteroscopic metroplasty

H R McClelland

Accepted 12 February 1993.

SUMMARY

Four patients with reproductive failure associated with uterine septa had transvaginal hysteroscopic metroplasty performed. Two successful pregnancies have occurred and a third patient is now in the second trimester of pregnancy. This method of treatment should replace the traditional open method of surgical repair of these malformations.

INTRODUCTION

The development of excellent fibre-optics, camera systems and small hysteroscopes has made the procedure of hysteroscopy increasingly important to the gynaecologist. The further development of operative systems and instruments has facilitated intrauterine surgery, with transcervical resection of the endometrium as an alternative to hysterectomy and resection of submucous fibroids as an alternative to myomectomy. Removal of uterine septa by endoscopic techniques is now advocated.

Uterine malformations arise from deficient development, non-fusion or defective canalisation of the Mullerian system. Patients with these defects are prone to recurrent pregnancy losses.¹ The incidence of these abnormalities is unknown as most defects are minor and not detected, but most authorities agree that the incidence of symmetric uterine abnormalities is between 0.1% and 1.5%.² ³

Traditionally, metroplasty to correct the malformed uterus has been performed by the transabdominal route, usually by a Strassman, Jones or Tompkins procedure or modified versions of these procedures. These techniques give excellent results in terms of successful viable pregnancies⁴ ⁵ ⁶ as well as in producing pregnancies that go to full term. The problems with these procedures are associated with the operative and post-operative morbidity of laparotomy.

In recent years several large series of hysteroscopic metroplasty have been reported⁷ ⁸ ⁹ which have now exceeded in numbers those cases reported in transabdominal series. The evidence from these reports has prompted Daly⁷ to refute an editorial comment that it is too soon to say that this is the preferred method of therapy for septate uterus, and to state that hysteroscopic metroplasty appears to be the treatment of choice in patients with uterine septa associated with pregnancy loss.
Four cases of hysteroscopic septum resection are described, including the first performed in Northern Ireland; traditionally metroplasty had been performed by the transabdominal route mostly by one surgeon using his own modification of the Tompkins procedure, (JMG Harley — personal communication, 22 cases, successful outcome 95%).

CASE 1

A 33 year old woman, para 2+2. In 1981 she had an unexplained intrauterine death at 28 weeks' gestation. In 1982 she gave birth to a pre-term live infant at 35 weeks' gestation. In 1985 and 1990 she had spontaneous abortions at seven and nine weeks. At the time of evacuation of retained products a uterine septum was suspected, and hysterosalpingogram confirmed a septate uterus.

Septum resection was performed in February 1991 and she subsequently became pregnant within three menstrual cycles. In January 1992 at 40 weeks' gestation a male infant weighing 3,500 g was delivered successfully by forceps.

CASE 2

A 28 year old woman, para 0+1. In 1990 spontaneous abortion occurred at 8 weeks' gestation. During evacuation of the uterus the obstetrician suspected a uterine septum, and hysterosalpingogram confirmed the diagnosis. Septum resection was performed in February 1991, and she became pregnant within three menstrual cycles. A female infant weighing 2,890 g was delivered normally at 39 weeks' gestation.

CASE 3

A 28 year old woman, para 0+3 had spontaneous abortions at eight, 10 and 11 weeks' gestation. Hysterosalpingogram was performed as part of the investigation of recurrent pregnancy loss and demonstrated a deep septum in the uterus with an acute angle at its apex. Uterine septum resection was performed in March 1992. Follow-up hysterosalpingogram showed an improvement in the uterine shape but a further resection was performed in July 1992 and the subsequent hysterosalpingogram then showed a nearly normal cavity (Figure). She is now in the second trimester of pregnancy.

CASE 4

A 22 year old woman, para 0+3 with spontaneous abortions at seven, nine and ten weeks had similar hysterosalpingogram and operative findings to Case 3. Septum resection was performed in July 1992. She lives in Germany and follow-up is awaited.

All patients were discharged from hospital the day after the procedure was performed and no morbidity has been reported.

METHOD

The patient is anaesthetised and placed in the lithotomy position. The hysterosalpingogram is displayed in theatre for reference. Concurrent diagnostic laparoscopy and hysteroscopy are performed. Laparoscopy is mandatory in order to ensure that the uterine fundus has a broad base in keeping with a septate uterus and that it is not a bicornuate uterus which cannot be corrected by this method.
Hysteroscopic metroplasty

It is necessary to inspect the pelvis in general and the laparoscopist can also inspect the uterus during the metroplasty looking for evidence of the hysteroscopic light penetrating near the serosal surface indicating close proximity of the instruments. Evidence of thermal damage could also be detected.

Hysteroscopy is performed following dilatation and sounding of the uterine cavity. An operating hysteroscope with a continuous flow irrigation/distension system is used. The distension medium is 1-5\% glycine, and a diathermy knife is used to perform the resection. Cutting and coagulation current is adjusted as necessary to ensure the lowest power necessary for efficient cutting. A pressure bag is used to deliver the glycine through the system. The pressure used should be the lowest to give adequate and continuous uterine distension as the higher the pressure the greater the possibility of forcing glycine into the circulation.

The uterus is inspected to identify both horns and the septum. The depth of the septum can be gauged by the use of the “gun” of the resectoscope and the width by moving the 7 mm cutting knife across the surface of the septum. Once orientation is achieved the septum is excised using the diathermy knife. The edges retract and the septum opens as if something was pulling the septum in opposite directions. A larger and more normal shaped cavity results. Great care is taken not to cut into the normal cornual tissue which is the thinnest part of the
uterus. The first part of the septum is reasonably avascular but as myometrium is approached more bleeding occurs which is a warning that the resection is nearing completion.

Regardless of the type of instrumentation used, the surgeon must be able to see the right and left cornual regions completely and be able to keep the septum in view at all times. Care must be taken to account for the glycine used in the procedure as intravasation of the distending medium does occur. Circulatory overloading could lead to pulmonary oedema, convulsions, coma or death. The recommendation is that if a deficit of two litres is reached, surgery must be stopped. The greatest deficit of glycine during these four procedures was 400 ml.

DISCUSSION

Patients with uterine septa can have successful pregnancies, up to 50% having a successful outcome with conservative management. Rock and Jones reported increased morbidity and mortality over a period of seven years in patients with "good prognosis" septa. The rate of pregnancy loss was 44%, with a 35% caesarean section rate for labour complications including malpresentation (8), dysfunctional labour (6), cord accident (2) and placenta praevia (1 case). There is an argument that a procedure which carries minimal morbidity could be used even in patients with "good prognosis" septa in order to prevent pregnancy complications.

It is unlikely that a prospective study will ever be undertaken to compare trans-abdominal metroplasty, hysteroscopic metroplasty and conservative management. The success rates for different types of metroplasty appear similar and morbidity (short and long term), subsequent management of the pregnancy (normal delivery is more likely with hysteroscopic metroplasty because there is no uterine scar), and cost-effectiveness make the hysteroscopic procedure the treatment of choice.

Hysteroscopic metroplasty should only be undertaken by an experienced hysteroscopist familiar with the instruments and the techniques of intrauterine endoscopic surgery. Laparoscopy and the use of camera systems enhance the safety factors. Some questions have not been addressed and may never be answered. Which method of hysteroscopic surgery is best — incisional, diathermy or laser? Should all septa be removed to reduce morbidity from labour complications? What is the place of ultrasound guided incisional metroplasty which may be a safer technique than hysteroscopic metroplasty?

The increasing interest in this technological advance will probably ensure that hysteroscopic metroplasty will stand the test of time as transabdominal metroplasty has done for previous generations.

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