

DIAGNOSTIC AND THERAPEUTIC HYSTEROSCOPY

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Modern diagnostic hysteroscopy offers the opportunity to evaluate congenital or secondary intrauterine disorders by direct visualisation in an uncomplicated efficient technique. In most patients it is possible to introduce the rigid 5 mm hysteroscope directly into the uterine cavity without dilatation of the cervix. Anaesthesia or analgesia is not needed. The uterine cavity is distended by CO₂ or Ringer's lactate solution under controlled pressure. The shape of the cavity is inspected, the tubal ostia are localized and classified for pathological alterations and the endometrial structure is analysed.

Focal lesions can be seen very distinctively and controlled endometrial samples can be taken for morphological analysis. This offers an advantage over the traditional blind curettage. The cervical channel is being inspected during retraction of the instrument. The whole examination usually does not take more than 5 minutes or less.

The most common indication for diagnostic hysteroscopy is the bleeding disorder in form of menometrorrhagia, postmenopausal bleeding or secondary hypo- or amenorrhoea. The cause of these symptoms may be intrauterine polyps, fibroids, endometrial hyperplasia, endometrial carcinoma or synechia. From our experience intrauterine fibroids are nearly always missed in diagnosis by the usual curettage. In endometrial carcinoma hysteroscopy can be used for preoperative staging.

The second field for diagnostic hysteroscopy is infertility workup. In combination with laparoscopy and salpingoscopy a complete evaluation of the female reproductive tract is possible in one procedure. Secondary alterations such as polyps, fibroids or synechia can be a cause for sterility. Congenital malformations such as uterine septa may become a cause for recurrent pregnancy loss.

Intrauterine foreign bodies such as lost intrauterine device (IUD) can be visualized and extracted by hysteroscopy. Even in early intrauterine pregnancy under failure of the IUD it is possible to extract the IUD without disturbance of the ongoing pregnancy.

In the future hysteroscopy may become a tool for transcervical intratubal diagnostic and operative procedures for infertility therapy or, for example, in treatment of ectopic pregnancy. Until now hysteroscopic sterilisation has not given the safety that we know from transabdominal techniques.

In conclusion diagnostic hysteroscopy can be used as a simple screening method on an outpatient basis under good patient compliance.

Diagnosis leads to therapy. Nowadays intrauterine disorders can be treated directly by operative hysteroscopy. Either the Nd:Yag-Laser or the resectoscope are commonly used. The laser has the advantages of possibility of application through a flexible hysteroscope and excellent hemostatic effect. The disadvantages are the longer operation time, the greater need of maintenance and the higher equipment costs.

We prefer to use the resectoscope. It works with unipolar electric current giving the possibility of intrauterine dissection and coagulation. For uterine distension an electrolyte-free fluid has to be used such as glycine, 32% dextran or sorbitol/mannitol. We apply the fluid by an automatically flow and pressure controlled pump. Evacuation is supported by an active pump system. In this manner a low pressure system is created for flushing the uterine cavity to establish good visibility and minimizing the risk of hyperhydration.

Indications for intrauterine surgery are:

- 1) Resection of intrauterine fibroids or big polyps.
- 2) Septumdissection.
- 3) Endometrial ablation.

We have treated 36 patients with intrauterine fibroids ranging in diameter from 1 cm to 6 cm, medium 2.6 cm. 26 patients had bleeding disorders, 6 of them presented with a hemoglobin count $<8\text{g/dl}$. Six patients had secondary dysmenorrhoea. Fourteen patients suffered from infertility (7 primary, 5 secondary, 2 recurrent pregnancy loss). Operation time varied between 5 and 120 minutes, in medium 32 minutes. 29 myomas were removed during a single operative intervention, in 6 cases a second operation for completion of resection had to be done. Five of these were planned second operations, because of the size of the myoma, operation time or fluid consumption had reached a critical point and the operation had been stopped without completion.

Fourteen control hysteroscopies were performed. A normal uterine cavity was found in 10 cases. Twice fibroids of different location than before were encountered and removed, one unsuspected remnant of myoma was found and small central synechia were found in one case.

All patients with bleeding disorders had normalisation of menses. Four patients had complete, two partial relief of dysmenorrhoea. Four patients have become pregnant, two delivered at term, one had an ectopic pregnancy and one an abortion in 12th week of gestation. This patient had a history of two previous abortions. She was 43 years old, genetic analysis of the conceptus revealed a trisomy 22.

Fortyseven patients with uterine septa have been treated by hysteroscopic dissection. Thirtyseven were partial, 10 were complete septa. Thirtysix of the patients suffered from recurrent pregnancy loss. Eleven had primary infertility, mostly because of other reasons (tubal infertility, endometriosis, male factor). The septa were dissected before infertility treatment to create optimal nidation conditions.

The 36 patients with pregnancy loss preoperatively had had 106 pregnancies, 95 of these ending in abortion (89.6%). Three ectopic pregnancies had occurred (2.8%). Eight children had been born, 3 of them premature before 35th week of gestation, 7 children survived (6.6%).

Up to now 19 patients postoperative have become pregnant with 21 pregnancies. Only one patient has had repeat abortion. The had two abortions at 9th and 10th weeks of gestation. In one of these cases genetic analysis revealed a trisomy 23, in the other case it was not possible to conduct genetic examination. One patient had an ectopic pregnancy after microsurgical refertilisation and septum dissection.

Sixteen children have been born (76.2%), three of them premature in 34th and 35th week, all survived. Two patients are pregnant in 20th and 24th week of gestation. The postoperative abortion rate of 9.5% is statistically significantly lower than the preoperative rate of 89.6% ($p < 0.01$).

Intrauterine surgery bears certain operative risks: fluid overload with pulmonal and cerebral edema can occur; we had no such case. Uterine perforation is possible with injury to other pelvic organs such as bowel, bladder, blood vessels or ureter. During myoma resection we had one case of uterine perforation with injury to the small intestine. A laparotomy with segmental bowel resection and primary anastomosis had to be performed, the postoperative course was uneventful. Postoperative infection or hemorrhage or distant burns by unipolar current conduction might occur; we had no such case.

In conclusion intrauterine endoscopic surgery offers the advantages of a minimal invasive procedure with short operation time and short hospitalisation. No transuterine scar is created, in later pregnancies there is no reason for elective cesarian section. It is a safe procedure in experienced hands, but there is a certain risk of dangerous complications. Before starting with operative hysteroscopy one should have a good experience in diagnostic hysteroscopy and a proper training.