

HYSTEROSCOPY USING A CO₂ TUBAL INSUFFLATOR WITHOUT THE VACUUM CANNULA

by

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SUMMARY

The CO₂ tubal insufflator delivers CO₂ at 30 ml per minute at pressures not exceeding 150 mm of Hg. The vacuum cannula is not used. Any leakage of gas is controlled by applying a Vulsellum laterally.

One hundred sixty-eight hysteroscopies were done using this technique. The procedure was unsatisfactory in 4 cases (3.1%). Out of 127 (75.66%) cases of infertility, there was some pathology in 71 (55.8%) cases. Out of 28 (16.6%) cases of menometrorrhagia, 18 (64.3%) had polypoidal endometrium, localised or diffuse, 2 (7.2%) had fibroids and 3 (10.7%) had retained products. Of 2 (1.2%) cases of post-menopausal bleeding, one had an endometrial polyp, which was removed and other had atrophic endometrium. Of the 7 (4.2%) cases of amenorrhoea, 4 (57.1%) had synechia which could be divided. Of 2 (1.2%) cases of dysmenorrhoea one had an endometrial polyp which was removed. 2 (1.2%) Lost IUDs were also removed.

Operative hysteroscopy was done in 24 (14.3%) cases; removal of lost IUD—2 cases (8.3%); removal of endometrial polyp—6 cases (25%); division of synechia—15 cases (62.6%) and division of septum—1 case (4.1%).

Hysteroscopy was useful in diagnosing pathology in 61.3% of cases and treating them in 14.3% cases.

Introduction

In 1869, Pentaleoni used a cystoscope to observe polyps in the uterus of a 60 year old woman with intractable bleeding. Hysteroscopy has come a long way since then and has become an established procedure from what was considered a short time back as a procedure "in search of an indi-

cation". Hysteroscopy is the "in" thing today and it is unravelling more and more mysteries of uterine cavity especially in so called unexplained infertility and functional uterine bleeding.

This paper analyses the work done by the author in his private practice reporting 168 cases done from 1st January 1984 to 31st March 1986. It also presents some simplifications of the technique for more universal use.

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Technique

Anaesthesia: Twenty-one cases (12.5%) were done under local paracervical block with 10 ml of 1% lignocaine as recommended by Sciarra and Valla (1977). One hundred thirty-eight cases (82%) where concurrent laparoscopy and minor operative procedure were done, were also given neuroleptanalgesia (Pentazocine + Diazepam 10 mgm). Only 9 cases (5.5%) needing extensive synechiotomy or cutting of an intrauterine septum were given general anaesthesia as suggested by DeCherney (1984), Siegler (1976) and Wamstekar (1984).

Procedure

The patient is put in the lithotomy position, painted and draped. A bimanual examination is done. The cervix is grasped by a tenaculum and the uterus is sounded.

The cervical suction cup is not applied. For diagnostic hysteroscopy, the cervix is gently dilated upto 4 mm and the hysteroscope with its 5 mm sheath passed into the cervical canal. For operative hysteroscopy, the cervix is dilated to 8 mm and the operating hysteroscope in its sheath is passed to the level of internal os.

The distending medium used is carbon dioxide gas delivered by a simple carbon

dioxide tubal insufflator, as recommended by Brooks *et al* (1984) and Gammerre *et al* (1983). This delivers carbon dioxide at 30 to 50 ml per minute at pressures adjusted not to exceed 150 mm of Hg. This is much cheaper than Hysterofflator or Metromet and equally efficient.

If there is a leakage of gas from a patulous cervix, two vulsella are applied laterally to get a gas tight seal.

This simple apparatus gave adequate uterine distension both for diagnostic and operative hysteroscopies in 164 out of 168 cases (97.6%). In addition, the tubal insufflator gives pressure recordings, an additional test for tubal functional patency in infertility cases.

Analysis of 168 cases

Infertility cases accounted for 127 cases (75.6%) of all hysteroscopies (Table I). Out of these only 56 (44.2%) were normal and 71 (55.8%) had some pathology. Blocked tubal ostia were diagnosed in 16 cases (12.6%)—unilateral in 8 (6.3%) and bilateral in 8 (6.3%). Uterine malformations were seen in 8 cases (6.3%) viz uterus arcuatus 3 (2.4%), double uterus 1 (0.8%), septate uterus 4 (3.1%). Polypoidal endometrium was discovered in 25 cases (19.7%) usually at the fundus and

TABLE I
Total Hysteroscopies: 168

I. Infertility	127	75.6%
(1) Normal	56	44.2%
(2) Tubal ostia blocked: unilateral	8	6.3%
(3) Tubal ostia blocked: bilateral	8	6.3%
(4) Uterus arcuatus	3	2.4%
(5) Double uterus	1	0.8%
(6) Septate uterus	4	3.1%
(7) Polypoidal endometrium	25	19.7%
(8) Endometrial polyp	6	4.7%
(9) Synechia	12	9.4%
(10) Unsatisfactory	4	3.1%

posterior wall. Six cases (4.7%) of endometrial polyps were diagnosed. Twelve cases (9.4%) had uterine synechia, while, hysteroscopy was unsatisfactory in 4 cases (3.1%).

In 28 cases (16.6%) of menometrorrhagia (Table II), 5 (17.8%) had normal cavity, 18 (64.3%) had polypoidal endometrium, 2 (7.2%) had fibroids and 3 (10.7%) had retained products. Of 2 cases (1.2%) of postmenopausal bleeding, one had an endometrial polyp and other had atrophic endometrium.

In 7 cases (4.2%) of amenorrhoea (Table II), 4 (57.1%) had uterine synechia and 3 (42.9%) had normal appearance. Of 2 cases (1.2%) of dysmenorrhoea, one had an endometrial polyp and other was normal. There were 2 cases (1.2%) of lost I.U.D.

Operative hysteroscopy was done in 24 cases (14.3%) viz removal of lost I.U.D.-2 cases (8.3%); removal of endometrial

polyp 6 cases (25%), division of synechia 15 cases (62.6%) and division of septum 1 case (4.1%) (Table III).

Discussion

Hysteroscopy helped to diagnose intra-uterine pathology in 55.8% of our infertility cases. Valle (1980), Taylor *et al* (1984), Gallinat (1984) reported intra-uterine pathology in 62%, 40% and 34.3% of infertility cases respectively (Table IV). Taylor *et al* (1984) and Valle (1980) reported that intrauterine synechia are 2 to 10 times more frequent in secondary as compared to primary infertility.

In cases of abnormal uterine bleeding, some pathology was elucidated in 23 out of 28 of our cases (82.2%). Siegler (1976) and Sciarra (1977) have reported some pathology in 21 out of 36 cases (58.3%) and 74 out of 104 cases (71.2%) of abnormal uterine bleeding (Table V).

TABLE II

II. Menometrorrhagia	28	16.6%
(1) Normal	5	17.8%
(2) Polypoidal endometrium	18	64.3%
(3) Fibroids	2	7.2%
(4) Retained products	3	10.7%
III. Postmenopausal Bleeding	2	1.2%
(1) Endometrial polyp	1	50%
(2) Atrophic endometrium	1	50%
IV. Amenorrhoea	7	4.2%
(1) Normal	3	42.9%
(2) Uterine synechia	4	57.1%
V. Dysmenorrhoea	2	1.2%
(1) Endometrial polyp	1	50%
(2) Normal	1	50%
VI. Lost I.U.D.	2	1.2%

TABLE III

Operative Hysteroscopy: 24 Cases (14.3%)

1. Synechiotomy	15	62.6%
2. Removal of endometrial polyp	6	25.0%
3. Removal of lost I.U.D.	2	8.3%
4. Division of Septum	1	4.1%

TABLE IV
Hysteroscopy in Infertility

Author	Total	Normal	Abnormal
Valle	142	54 (38%)	88 (62%)
Taylor <i>et al</i>	521	303 (60%)	218 (40%)
Gallinat	210	138 (65.7%)	72 (34.3%)
Khandwala	127	56 (44.2%)	71 (55.8%)

TABLE V
Hysteroscopy in Abnormal Uterine Bleeding

Author	Total	Normal	Abnormal
Siegler	36	15 (41.7%)	21 (58.3%)
Sciarra	104	30 (28.8%)	74 (71.2%)
Khandwala	28	5 (17.8%)	23 (82.2%)

In addition to diagnosis, hysteroscopy is a useful therapeutic tool for tackling intra-uterine pathology.

Intrauterine synechiotomy was done in 15 out of 24 cases. Sugimoto (1984) reporting on 258 cases of intrauterine synechiae stated that 243 (94.2%) cases could be broken bluntly with the tip of the hysteroscope alone. He further reports that menstrual flow improved in 57.2% cases of hypomenorrhoea and in 100% cases of amenorrhoea. Also full term deliveries occurred in 38.7% of habitual abortion cases and in 16.4% of sterility cases (Table VI). Many workers such as Wamsteker (1984), Levine and Neuwirth (1973) recommend division of severe adhesions especially marginal and fundal under laparoscopy control.

Removal of lost I.U.D. is emerging as an important indication for hysteroscopy. Valle (1978) reported on removal of lost I.U.Ds in 102 of 350 hysteroscopies. Leuken (1984) reported on hysteroscopy in 310 patients with I.U.D. problems.

De Cherney (1984) reports on 15 cases of excision of uterine septum using a standard urological resectoscope. The 1 case reported here was done with scissors using an operating hysteroscope.

Conclusion

Hysteroscopy has thus become an established procedure both for diagnostic and therapeutic purposes. It is possible to carry out these procedures with simplified technique described herein.

TABLE VI
Post Synechiotomy Result
Sugimoto: Total Cases: 258

	Hypomenorrhoea	Amenorrhoea
Improvement in menstrual flow	57.2%	100%
Full term pregnancy	Habitual abortion 38.7%	sterility 16.4%

References

1. Brooks, P. G., Corson, S. L. and Townsend, D. E.: Uses of Hamou Microcolpohysteroscope in clinical practice, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy, Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 78.
2. De Cherney, A. H.: Hysteroscopic management of mullerian fusion defects, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy, Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 204.
3. Gallinat, A.: Hysteroscopy as a diagnostic and therapeutic procedure in sterility, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy, Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 180.
4. Gamberre, M. and Serment, H.: Hysteroscopy v/s Hysterography, in Vander Pas, H., Van Herendael, B. J., Van Lith, D. A. F., Keith, L. G. (eds.): *Hysteroscopy*, Lancaster, MTP Press Ltd., 1983, p. 203.
5. Leuken, R. P.: Management of lost intrauterine device with hysteroscopy, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy, Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 227.
6. Levine, R. U. and Neuwirth, R. S.: *Obstet. Gynec.* 42: 441, 1973.
7. Sciarra, J. J. and Valle, R. F.: Hysteroscopy: a clinical experience with 320 patients: *Am. J. Obstet. Gynec.* 127: 340, 1977.
8. Siegler, A. M., Kemman, E. and Gentile, G. P.: *Fertil. Steril.* 27: 1267, 1976.
9. Sugimoto, O., Ushiroyama, T. and Fukuda, Y.: Diagnostic and therapeutic hysteroscopy for traumatic intrauterine adhesions, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 186.
10. Taylor, P. J., Leader, A. and George, R. E.: Combined laparoscopy and hysteroscopy in the investigation of infertility, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy, Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 207.
11. Valle, R. F.: Hysteroscopy in the evaluation of female infertility. *Am. J. Obstet. Gynec.* 137: 425, 1980.
12. Valle, R. F.: Hysteroscopy: *J. Reprod. Med.* 20: 115, 1978.
13. Wamsteker, K.: Hysteroscopy in Asherman's syndrome, in Siegler, A. M., Lindemann, H. J. (eds.): *Hysteroscopy, Principles and Practice*, Philadelphia, J. B. Lippincott, 1984, p. 198.