

examinations are much less likely to have the same ureteral abnormalities.² Confining preoperative intravenous pyelography to patients with either a large uterus or an adnexal mass could significantly decrease overall costs.

It is unlikely that a large prospective randomized trial of the overall effectiveness of preoperative intravenous pyelography in preventing intraoperative ureteral injuries during hysterectomy will be performed. Our decision analysis approach, in which the outcome of intravenous pyelography required to prevent a ureteral injury is used, demonstrates that the routine use of preoperative intravenous pyelography is extremely expensive even if the strategy is effective. Since anatomic ureteral abnormalities likely predict ureteral injury, we suggest preoperative intravenous pyelography when the gynecologic examination suggests the probability of an abnormality is high.

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Pathologic study of the cervix after cold coagulation

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In 20 patients Semm cold coagulation was performed on the exocervix to determine the depth of tissue necrosis and destruction of glandular crypts. Cold coagulation at 120° C for 30 seconds achieves a depth of destruction of at least 4 mm. (*AM J OBSTET GYNECOL* 1988;159:1053-4.)

Key words: Cold coagulation, cervical intraepithelial neoplasia, cervical crypt involvement by intraepithelial neoplasia

Cold coagulation was introduced by Semm¹ in 1966 to replace high-frequency current because of the side

effects of electric coagulation. This type of coagulation achieves protein coagulation and cellular necrosis at 100° to 120° C. The technique has been used as treatment of exocervical intraepithelial neoplasia in our hospital since 1985.

Since little is known about the effects of the Semm cold coagulation a study was done on the exocervix to determine the depth of penetration and tissue destruction obtained by this instrument.

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Material and methods

The study was performed on two groups of 10 patients. Coagulation was done at 100° C for 30 seconds in the first group and at 120° C for 30 seconds in the second group. All patients had cold coagulation performed 24 to 96 hours before total abdominal hysterectomy for benign conditions. Average age in both groups was 43 years (± 2 SD).

Microscopic features of the cervix were studied by two pathologists. Serial 1 mm sections of the cervix were cut to identify the deepest point of necrosis caused by cold coagulation. The distance from the deepest point of necrotic tissue to the surface of the exocervix was measured with a millimetric ruler.

Results

Six of the 10 patients with treatment at 100° C for 30 seconds had microscopic tissue destruction of ≥ 4 mm. Four patients had a necrotic penetration of 2.5 mm. The interval from coagulation to hysterectomy was 24 to 48 hours in these patients.

All patients of the group treated at 120° C for 30 seconds had a tissue necrosis depth of ≥ 4 mm. In 4 of 10 patients the surface epithelium of the cervix was completely destroyed.

Comment

Involvement of cervical glands by intraepithelial neoplasia was studied by Anderson and Hartley.² They reviewed 343 therapeutic conizations carried out at The

Samaritan Hospital for Women in London. Measurements were made of the deepest crypt that contained cervical intraepithelial neoplasia. They found that tissue destruction to a depth of 2.92 mm would eradicate all involved crypts in 95% of patients, whereas destruction to a depth of 3.80 mm would achieve eradication in 99.7%. Coagulation at 100° C for 20 seconds has been the standard treatment of cervical intraepithelial neoplasia used by Duncan (Duncan ID, personal communication, 1987) at the Ninewells Colposcopy Clinic, in Dundee, Scotland, since 1978.

Through January 1987, 963 patients with grade 3 cervical intraepithelial neoplasia have been followed up for a minimum of 6 months. The success rate fell from 96.8% at 6 months, to 95.5% at 1 year, to 93.1% at 2 years, to 91.9% at 5 years, to 91% at 10 years. Most failures occurred in the first 18 months of follow-up. Our present study suggests results of cold coagulation could be improved if performed at 120° C for 30 seconds instead of 100° C for 20 seconds, because of better penetration in the exocervical tissue.

Cold coagulation at 120° C for 30 seconds achieves a depth of destruction of at least 4 mm, as advocated by Anderson and Hartley² for treatment of exocervical intraepithelial neoplasia.

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