

# THE BENEFITS OF IVP AND BARIUM ENEMA IN PATIENTS UNDERGOING HYSTERECTOMY FOR BENIGN CONDITIONS

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*Abstract—A review of 500 cases was undertaken in order to identify which patients undergoing hysterectomy for benign disease were subjected to preoperative intravenous pyelogram (IVP) and / or barium enema (BE), and what abnormalities could be anticipated by these procedures as a surgical screen. Over 80% of the cases reviewed underwent trans-abdominal hysterectomy, and the remainder had vaginal hysterectomy. Close to one-third of the patients were admitted with the diagnosis of fibroid, and one-sixth with uterine prolapse. Miscellaneous benign conditions included adnexal masses, ovarian cysts, and dysfunctional uterine bleeding. Twenty-two patients (4.4%) had IVP preoperatively, while eight patients (1.6%) were given both IVP and barium enema prior to hysterectomy. Over three-fourth of the 22 patients revealed normal IVP, while one-half who had received both IVP and/or BE had an unremarkable roentgenogram interpretation. None of the subjects who had unusual findings in either group were of clinical significance on the pathology report. Post-operative course for the patients was also quite unremarkable. This review indicates that when benign disease is clear-cut and hysterectomy is indicated there is no need for IVP and barium enema.*

*Acta Medica Iranica 33 (1&2): 55-57; 1995*

*Key words: hysterectomy; IVP; barium enema*

Intravenous pyelogram is a diagnostic tool utilized not only for renal abnormalities but extra-renal pathology as well. The relationship between the renal and reproductive system in the female is a fundamental consideration essential to all endeavors in the domain of gynecology (5). The value of IVP in pelvic surgery was appreciated by many physicians in the 1960's (6,7). Incidents of hydro-ureto nephrosis have been reported with uterine prolapse (8).

Intravenous pyelogram is well-established as a standard means to evaluate and stage many gynecologic malignancies; these include congenital abnormalities, carcinoma, infectious and inflammatory disease processes. The role of IVP (with-or-without barium enema) as a preoperative procedure prior to hysterectomy for benign conditions is less established.

The purpose of the study was to determine the relevance of IVP and/or barium enema as a diagnostic screen prior to hysterectomy for benign disease.

## INTRODUCTION

It is the practice of some gynecologists to obtain a preoperative IVP and/or barium enema (BE) prior to hysterectomy for benign conditions of uterus (1). Preoperative IVP has been systematically employed in gynecologic surgery for almost twenty years (2). A report by Sampson in 1902 showed 0.88% of ureter-injury following hysterectomy (3); a follow-up study by Benson and Hinman in 1955 revealed a significant decrease, to 0.48%. This equated to a 50% reduction in ureteral injuries in the first half of this century (4).

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## PATIENTS AND METHODS

Cases of 500 patients who had hysterectomy between May 7, 1991 and October 9, 1992 were evaluated retrospectively for the incidence of preoperative IVP and BE procedures at Sacred Heart Hospital at Pensacola (University of Florida, USA). Every abnormal finding was compared to the pathology report and postoperative course in the hospital.

## RESULTS

Five hundred patients with hesterecomy were registered at Sacret Heart Hospital. About 82% (409/500)

were operated on by trans-abdominal route and the rest (18%) underwent vaginal surgery. Twenty-two cases (4.4%) got pre-operative IVP and 8 cases (1.6%) received preoperative BE. Normal IVP findings were observed in 17 out of 22 (77.3%) patients. Normal BE findings were also observed in 4 out of 8 (50%). Uterine weight ranged from 17 g–7,515 g (mean, 194.6 g).

Age distribution at the time of hysterectomy is give in Table 1. Preoperative clinical diagnosis is provided in Table 2. Abnormal IVP findings versus pathological reports for 5 cases are presented in Table 3. Abnormal BE findings versus pathological reports are shown in Table 4.

## DISCUSSION

Sack in 1979 reported 2.9% congenital abnormalities among 170 hysterectomized women diagnosed via IVP preoperatively (4). Our sample did not uncover any congenital anomalies among the cases reviewed.

Abnormal findings from IVP were almost exclusively from compression of the ureters. The only exception was a presentation of cortical scarring and hypertrophy of the kidneys, but unlikely associated with a small, 105 gram-sized uterus. Post-operative course by all patients was without any documented complications.

No patient developed any surgical or medical complication regarding ureters in our retrospective study. None of the vaginal hysterectomies ever received a preoperative IVP or barium enema; most likely there was no association other than physicians' preference here.

Literature reports show a higher morbidity for

endoscopic examination of the colon compared to a lower GI series with barium contrast. Research by Umbach (9) revealed only ten-percent abnormalities in 120 subjects utilizing barium enema for routine diagnosis. Stenosis due to exogenous tumors was the most frequently detected anomaly (9). No incidents of cancer were discovered in our study, except for miscellaneous conditions such as diverticula, ureter compression, or colon displacement. One case involved the right wall of the sigmoid colon due to a benign pelvic mass.

**Table 1.** Age and frequency at the time of hysterectomy.

Age	Frequency	Percent
0-34	142	28.4
35-46	238	47.6
>47	120	24.0

**Table 2.** Preoperative clinical diagnosis.

Diagnosis	Frequency	Percent
Fibroid	163	32.6
Uterine prolape	82	16.4
Ovarian cyst	39	7.8
Adnexal mass	32	6.4
Dysfunctional uterine bleed	28	5.6
Adenomyosis	27	5.4
Recurrent-suspect pap smear	21	4.2
Pelvic endometriosis	17	3.4
Family history of ovarian cancer	7	1.4
Other	84	16.8
Total	500	100

**Table 3.** Abnormal IVP findings VS pathology report (5 cases).

Case No.	IVP reading	Pathology report
57	pelvic mass; 20 cm diameter; ureter and bladder compression.	uterus: 480 g dimension: 15 × 15 × 15 cm
179	right ureter compression; likely myomatous mass.	uterus: 480 g dimension: 8 × 8 × 7 cm
301	limited excretion; no evidence of obstruction.	uterus: 120 g dimension: 9.5 × 6 × 5 cm
467	large calcified mass compressing right ureter.	uterus: 2090 g dimension: 18 × 20 × 13 cm
469	moderate cortical scarring of right kidney; hypertrophy of left kidney	uterus: 105 g dimension: 8.6 × 5.5 × 4 cm

**Table 4.** Abnormal barium enema findings VS pathological report (4 cases).

Case No.	Barium reading	Pathology report
57	pelvic mass; 20-cm diameter; ureter and bladder compression.	uterus: 480 g dimension: 15×15×15 cm
341	diverticula (small size) of left lower descending colon.	uterus: 205 g dimension: 7×7×5.5 cm
365	laterally-displaced colon from large mass; no colon involvement.	uterus: no report dimension: 17×15×20 cm
468	right pelvic mass; right wall of sigmoid colon involved.	uterus: 170 g dimension: 7×8.5×5.5 cm

## COMMENT

Before any procedure becomes standardized as a form of routine in medical practice, the risk-benefit and cost-benefit need to be carefully analyzed. Two major risks are associated with intravenous urography: reaction to the contrast agent and radiation exposure. A review of 318,500 examinations using contrast showed a severe reaction occurring in one out of 14,000 patients and fatal reaction in one out of 40,000 procedures performed. Of special note is that the study showed a marked increase in both severe and fatal reactions in patients over the age of 50. No patient suffered a reaction in our study.

In terms of cost, any procedure is weighed relative to the demographic region and influenced by the vagaries of inflation and the economic climate. In 1993 in northwest Florida, an IVP procedure ranged between \$275-\$295, while a barium enema cost between \$312-\$334. These variables must be weighed against the usefulness of the procedures as preoperative screens in benign cases.

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