

## PELVIC PHLEBOGRAPHY IN FEMALE GENITAL CANCER

by

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Pelvic phlebography is one of the recent developments in radiological investigations. At present it is a well established method which aids in the diagnosis of the pathological conditions of or in the region of the pelvic veins. The presence of broad anastomoses filled with dense contrast media is always a sign of pathological circulatory condition.

This technique was first introduced by Dos Santos in 1938 which was perfected later by Wanke and Gunrich (1950) who performed pelvic phlebography by percutaneous puncture of the femoral vein in the groin. Bartley (1958), Lessman and Waldrop (1958) Helander and Lindbom (1959) and Lindbom (1960) studied malignant lesion in the pelvis by phlebography. The main changes reported were displacement, indentation, tortuous and dilated vessels, obstruction of the large veins and stasis of the contrast media, Schobinger and Ruzika (1964) investigated a large series by this technique.

### *Material and Method*

The present work was undertaken at the J.K. Institute of Radiology and Cancer Research, Kanpur. We followed the

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technique advocated by Schobinger and Ruzika (1964) with slight modification. One of the femoral veins was palpated and punctured with 15 gauge BD needle with full aseptic precaution. The syringe was detached leaving behind the needle in position. A polythene tube was passed through the needle into the femoral vein about 1 cm. beyond the tip of the needle. The polythene tube was connected to the intravenous drip set and the drip started at a slow rate to avoid blood clot formation. Then the other femoral vein was also punctured in the same manner. Both the polythene tubes were connected to a "Y" shaped cannula, one limb of which was attached to the drip set (Fig.1). Abdominal compression with a cotton ball was applied just to the right of the umbilicus to occlude the inferior vena cava at that level. About 40 ml. of the contrast media was taken in 50 c.c. leur lock syringe and injection was made through the "Y" shape cannula by manual pressure as rapidly as possible. Films were exposed just before the completion of the injection. Later the abdominal compression was released and further skiagrams were taken. The drip was again connected and continued for some time. Both the polythene tubes and needles were slowly removed and the bleeding from the puncture site was checked by applying manual pressure for about 10 minutes. The patient was kept under watch for

about 4 hours for any haematoma formation at the puncture site or any other complication.

*Observation and Discussion*

In this study 60 cases of female genital cancer were investigated. The age of the patients ranged from 25 to 50 years. Bilateral puncture of the femoral vein was performed in 56 cases while in 4 cases unilateral injection was done separately. The common complications noted are shown in Table I.

TABLE  
Complications

Complications	No. of cases	Percentage
1. Perivascular extravasation of dye	8	13.33
2. Severe pain at puncture site	20	33.33
3. Arterial puncture	10	16.66
4. Hematoma formation	10	16.66
5. Nausea, vomiting	16	26.66
6. Oozing of oedema fluid	2	3.33

Helander *et al* (1959) and Ternberg and Butecher (1965) found hematoma formation and pulmonary oil embolism as the most frequent complication. Thomas and Fletcher (1967) did not find any significant complication in their study. In our series oozing of the oedema fluid was the only late complication which subsided after 4 hours. In our series 40 cases showed abnormal findings while in 20 cases

normal venous pattern was demonstrated as shown in Table II.

Carleson *et al* (1961) performed 23 pelvic phlebograms in which 14 cases were normal while 9 cases showed abnormal venous pattern. Ternberg and Butecher (1965) reported 116 normal and 81 abnormal phlebograms in a series of 371 cases. Lee *et al* (1971) in a series of 24 cases demonstrated 3 normal and 18 abnormal phlebograms. Our findings agree with those of Lee *et al* (1971).

In our study we could visualise the deeper vein of the pelvis in addition to the superficial veins by applying abnormal compression on the inferior vena cava. Indentation of the arterial wall also became more prominent due to this pressure. Dalali *et al* (1954) were also of the opinion that filling of the veins were improved by compression over the inferior vena cava. But in obese patients it was sometimes difficult (Helander and Lindbom, 1959).

The abnormal findings we could visualise in our cases were indentation, displacement, complete obstruction of the vessel and visualisation of collaterals and abnormal vessels. These abnormalities were demonstrated in both the major as well as minor veins as shown in Table III.

The indentation of the veins was seen in 47.5% of cases and the maximum in the external iliac vein (Fig. 2). This is due to the fact that the external iliac group of lymph nodes are most common-

TABLE II  
Findings

	Total	Abnormal	Normal
Carcinoma cervix uteri	48	34	14
Carcinoma uterus (body)	4	2	2
Ovarian tumour	8	4	4
Total	60	40	20

TABLE III  
Abnormal Phlebographic Finding in 40 Cases

	Ca. Cervix 34	Ca. Uterus 2	Ovarian tumour 4	Total
Indentation	16	1	2	19
— Common iliac	2	—	—	2
— External iliac	8	1	1	10
— Internal iliac	4	—	1	5
— Smaller vein	2	—	—	2
Displacement	7	1	2	10
— Common iliac	2	—	—	2
— External iliac	4	—	2	6
— Internal iliac	1	—	—	1
— Smaller vein	—	1	—	1
Obstructions partial	7	1	2	10
— Common iliac	3	—	1	4
— External iliac	3	1	1	5
— Internal iliac	1	—	—	1
— Smaller vein	—	—	—	—
Complete	5	—	—	5
— Common iliac	2	—	—	2
— External iliac	2	—	—	2
— Internal iliac	1	—	—	1
— Smaller vein	—	—	—	—
Collaterals	10	1	2	13
— Multiple	6	—	1	7
— Few	4	1	1	6

ly affected from malignant growth of the cervix uteri and body of the uterus resulting in indentation of the adjacent vein. Helander and Lindbom (1959) reported indentation of the external iliac vein in 22.2% of cases while Lee *et al* (1971) showed indentation of major veins in 25% of cases which agrees with our findings.

Displacement of the major vessels (external and common iliac veins) was seen in 10 cases (25%) (Fig. 3), while the internal iliac and smaller veins were displaced in only 1 case. Bartely (1958) reported displacement of the veins. Carlsson *et al* (1961) Lee *et al* (1971) also reported displacement in 25% of the cases.

Partial obstruction of the external iliac vein was seen in 5 cases (12.5%) and common iliac in 4 cases (10%) (Fig. 4). The obstruction was smooth and due to external pressure (Dalali *et al*, 1954).

In cases of complete obstruction there was oedema of the lower limbs. Phlebography showed multiple collaterals (Fig. 5) as also described by Dalali *et al* (1954) and Lee *et al* (1971).

Pyelogram were taken in all the cases. Abnormalities demonstrated were hydro-nephrotic changes in the kidney in 13 cases (32.5%) (Fig. 6), and displacement of the uterus in 2 cases (5%). Helander and Lindbom (1959) and Lee *et al* (1971) also supported these findings.

*Summary*

Pelvic phlebography has been performed in 60 cases of various lesions of the female genital tract. This is a safe procedure and can be easily done to evaluate the primary and metastatic lesion of the pelvis.

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*See Figs. on Art Paper III-IV*