INDIRECT METASTATIC SPREAD OF CARCINOMA CERVIX

by

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The dissemination of neoplastic cells throughout the body is intricate and capricious and may take diverse forms. Carcinoma cervix may directly invade contiguous organs or indirectly spread along lymphatic and vessels to the distant organs. Direct extension is influenced by its anatomic location. Thus, it may extend into the vagina, uterus, bladder, rectum and parametria.

The exact process of dissemination by indirect pathways cannot be determined in the large majority of cases, but by clinical and radiological examinations the route of metastasis can be evaluated.

The study comprises of 109 cases out of 3000 cases of carcinoma cervix which were followed between Jan. 1971 to July 1974 for indirect spread of the disease at J. K. Institute of Radiology and Cancer Research, Kanpur. This study is made exclusively from the clinical, radiological and lymphographical observations during the routine follow up studies.

Observation

Three thousand cases were clinically examined in the follow up clinic. Skiagram of the chest, skull, pelvis, and other bony parts of the body were taken according to complaints. In 60 cases lymphography was performed, who were successfully treated by radiotherapy for stages I and II. The findings and involved structure is shown in Table I.

TABLE I

Showing Structures Involved by the Disease Process

Site	No. of cases	Percentage
Lymph nodes	53	48.6
Lungs and pleura	32	29.4
Bones	12	11.0
Liver	2	1.9
Brain and Skull	4	3.6
Skin	2	1.9
Breast	4	3.6

The maximum cases were having lymph nodes involvement (48.6%) in this study which were observed on clinical, radiological and lymphographic examinations. The lymph nodes involved cases were further analysed as shown in Table II.

TABLE II

Showing Lymph Node Groups Involved in Carcinoma Cervix

Group of Lymph nodes	No. of cases
Left supraclavicular	7
Right supraclavicular	3
Both supraclaviculars	1
Neck	3
Mediastinum	2
Para-aortic	37
Total	53

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The maximum involvement was that of para-aortic lymph nodes as observed by lymphography (Fig. 1). Bilateral supraclavicular lymph node involvement was seen in only one case, while two cases showed mediastinal lymphnode involvement. The rest of the cases showed involvement of the left supraclavicular, right supraclavicular and cervical lymph nodes (Fig. 2).

Indirect spread may also occur through blood stream and 51.4% of the cases have positive evidence of metastases by blood stream. The different sites of metastases observed have already been shown in Table I. The lungs and pleura had the highest incidence of involvement (29.4%) followed by bones (11.0%), 36% each of brain and skull and breast (Fig. 3), and 19% each of liver and skin.

Discussion

Cancer cervix chiefly spreads by direct continuity into the vagina, uterus, parametria, anteriorly to the bladder and posteriorly to the rectum, indirectly by lymphatics to parametria, hypogastric, common iliac, para-aortic, supraclavicular and cervical neck and by blood stream to the lungs, pleura, bones, soft tissues, skin and liver. The hypogastric lymph nodes cannot be visualised by lymphography (Fischer *et al,* 1962). We noticed 37 cases of para-aortic lymph node involvement by lymphography, which were clinically well. Andorizon and Leitch (1906), Bilz (1923) and Bonny (1932) also reported such type of cases who were previously treated and came with the para-aortic lymph node involvement.

Involvement of the supraclavicular and cervical lymph nodes is unusual. Graham (1962) Carleson *et al,* (1967), Pant and Sanyal (1972) also supported the view. In our series there were 14 cases in which the supraclavicular and cervical lymph nodes were involved.

Mediastinal lymph node involvement is also a rarity in cancer cervix. Our series is having two cases of mediastinal lymph node involvement which were diagnosed radiologically. Carleson *et al,* (1967) found one case in their series of 2220 cases while Pant and Sanyal (1972) reported only one case out of 600 cases.

Blood borne metastases in cancer cervix are not unusual though generally patient dies due to pelvic disease long before these are detected clinically.

According to Willis (1967) most potent sources of blood borne metastases are large veins. Which have suffered partial non-occlusive invasion and which contain masses in contact with flowing blood. When a tumour which has invaded and spread along a small vein reaches and projects into a large trunk vein, a dangerous source of tumour emboli is provided. The invasion of the thoracic duct, cisterna chyli, or their main tributaries act as sources of embolic dissemination to the lungs and through blood circulation to the bones and other organs.

Intrapulmonary deposits from cancer cervix are frequently seen. In our series there were 32 cases involving the lungs and pleura. Grahm *et al,* (1962) reported 17% incidence and Carleson *et al,* (1967) 44 cases out of 2220 cases. Our observations favour those of Carleson *et al.*

Bony secondaries may also deposit in the pelvis, and lumbar vertebra through the venous plexuses surrounding the cervix. Incidence of bony secondaries has been reported between 5% (Willis, 1952) and 7% (Pearson, 1936). In our series 12 cases showed bone involvement, while 4% cases were having metastases in brain and skull. Pant and Sanyal (1972) reported 3 cases of bone metastases in their

series of 600 cases. Our figures agree with the above authors.

Liver metastases are not unusual, but the advanced cases do not come to the hospital for treatment as mostly the prognosis is explained by the family physician. We had only two cases in our series, who showed involvement of liver.

Six cases of soft tissue and skin metastases have been observed which were histologically proved. Sharma *et al* (1969) reported 4 cases having metastases in soft tissue, while Kasturi Lal (1972) also reported one case having metastases in calf muscles in carcinoma cervix. In the present series majority of cases had no evidence of residual or recurrent growth except the soft tissue metastasis.

Summary

One hundred and nine cases of indirect metastases of carcinoma cervix have been reviewed in a series of 3000 cases. Different site of metastases have been mentioned, based on clinical radiological and pathological examinations and possible reasons of the rarity of such types of metastases is discussed.

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See Figs. on Art Paper IV