A CASE OF KRUKENBERG TUMOUR REMOVED WITH THE PRIMARY*

by

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Krukenberg tumour of the ovary is of rare occurrence. It was first described by Krukenberg in 1896. In his original thesis he regarded it as fibrosarcoma but subsequently it was found to be a metastatic carcinoma with marked fibrocellular reaction. The histogenesis and pathology of the Krukenberg tumour was established by Schlagenhaufer in 1902. But Krukenberg's original description of the tumour is so accurate that it has been named after him. From the collected reports of Ovarian Tumour Registry of America the incidence seems to be nearly 2.8 per cent (48 out of a total of 1700 ovarian tumours studied were found to be Krukenberg tumours) (Woodruff and Novak).

Krukenberg tumour is considered to be a metastatic tumour whose primary site is usually in the gastro-intestinal tract. Seventy per cent of primaries are found in the stomach. The large gut and occassionally the breasts may also harbour the primary. Novak also reports cases where primary could not be located by most extensive search. He, therefore, postulates that in a minority of cases the tumour may be primary in the ovary.

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The characteristic features of these tumours are that the secondary tumours attain such a large size as to attract principal attention and the primaries are lost sight of. The other very distinguishing characteristic feature is that the histological pictures of the secondary do not coincide with those of the primary. It should also be pointed out that Krukenberg tumours are usually bilateral, though they may differ in size.

I could not find any report in the literature of a case where a Krukenberg tumour was removed together with the primary in the bowel at the same sitting. A case of bilateral Krukenberg tumour with primary in the appendix is being reported here. The primary was located at laparotomy and both the primary and secondary tumours were removed at the same operation.

Case Report

The patient, P. L., aged 42 years, was admitted on 17-4-66, with the camplaints of pain in the lower abdomen for the last 5 days along with severe prostration, anorexia, and vomiting. She had her last period 4 months ago and was a mother of 10 children, all term normal deliveries and all alive.

On examination, the patient was found to be a malnourished, anaemic woman. Her pulse rate was 120/min and B.P. 120/80 mm. of mercury. On abdominal examination a mass was felt arising from the pelvis

reaching up to the right iliac fossa and very tender to palpation. There was no evidence of free fluid in the abdomen; neither was there any distension; peristalsis was normal.

On vaginal examination, the body of the uterus was normal in size. There was a mass on the right side which was continuous with the mass felt abdominally and was apparently arising from the right ovary. There was another mass which seemed to be arising from the left ovary and extending into the pouch of Douglas. Both the masses were felt to be solid on palpation.

The haemoglobin of the patient was 9 gm%. Urine showed no abnormality. A provisional diagnosis of ovarian malignancy was made and a laparotomy was decided on. On 22-4-66 the abdomen was opened by a midline incision. There was a small collection of haemorrhagic fluid in the abdominal cavity. Both the masses were found to be arising from the ovaries; they were greyish in colour and kidney-shaped with areas of haemorrhage. The size of the right tumour was 15 cm x 10 cm., and that of the left 10 cm x 5 cm. The left tumour was twisted on its own pedicle. There were omental adhesions possibly due to twisting. The adhesions were easily separated and a total hysterectomy with bilateral salpingo-oophorectomy was performed. Omentectomy was also done as there were a number of suspiciously enlarged omental lymph nodes.

On further exploration the appendix was found to be enlarged and full of mucus i.e. there was mucocele of the appendix. At the junction of caecum and appendix a thick ring of tissue about 1 cm. broad was found encircling the base of the appendix It was greyish white in colour with smooth surface. Whole of the appendix, part of caecum together with growth were removed. All other abdominal organs including liver and stomach were normal. Abdomen was closed in the usual way and the post-operative period was uneventful.

On histological examination the sections from the ovarian tumours showed typical features of Krukenberg's tumour with signet-ring cells. The section of the omental nodes also demonstrated signet ring cells. The structure of the appendix was typical of a mucocele but that particular ring of tissue was histologically an adenocarcinoma of the appendix.

A follow up barium meal x-ray did not reveal any abnormality. The patient was discharged with the advice of reporting to hospital every month. She was also put on Endoxan. She last reported in July 1966 and was doing well.

Discussion

Krukenberg tumours are very interesting in the sense that the histological picture of the secondary does not correspond to that of the primary. It is the secondary which steals the "Show" by its size and symptoms. Woodruff and Novak are of the opinion that in about ten per cent of cases, primary site can not be identified.

The characteristic histologic picture is a diffuse infiltration of basic stroma with large cells the nuclei of which are eccentrically placed, often against the cell wall producing the characteristic "signet ring" appearances. As Schiller has suggested the picture is produced by the intracellular mucin and probably loss of polarity.

Woodruff and Novak lay down the following criteria for diagnosis of Krukenberg's tumour.

1. The tumour is in the ovary.
2. There is demonstratable evidence of intracellular mucin by the formation of signet ring cells.
3. The diffuse infiltration of the stroma justifies the general appearance of a sarcoma-like picture.

Haines and Taylor, in their Textbook of Gynaecological Pathology, state that a Krukenberg's tumour may occasionally be unilateral. They are also of the opinion that though the signet-ring cells are only present in the ovarian secondary, these characteristic cells may also be found in omental and lymphatic metastases. This particular case illustrates this point beautifully. The section from the lymph gland shows signet-ring cells as in the section from the ovarian tumour.

As regards fibrous tissue reaction, Haines and Taylor stated that in some cases the stroma may be inconspicuous whereas in others the stroma predominates in the form of plump cells which obscure the signet-ring cells and the tumour may be diagnosed erronously as a fibroma or fibrosarcoma.

In this particular case, the stromal reaction is not prominent in the sections taken.

The history of amenorrhoea is also peculiar here. Woodruff and Novak record menstrual abnormality in about 40 per cent of their cases, irregular bleeding being most common. Amenorrhoea has not been noted by them.

Prognosis is of course uniformly poor. Out of 48 collected cases of Woodruff and Novak 42 are dead. One was lost sight of. Of the remaining 5, who are still living 4 years after the operation 4 are considered to be harbouring primary Krukenberg; 37 of 38 patients in which the ovarian lesions were secondary were dead within 2 years.

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References

1. Haines, M. and Taylor, C.: Gynecological Pathology. London, 1962, J. & A. Churchill Ltd.
2. Krukenberg: Arch. Gynak. 50: 287, 1896.
3. Schiller, W. and Kozall, D. D.: Am. J. Obst. & Gynec. **41**: 70, 1941.
4. Schlagenhaufer, Montas: Schr. Geburtsh Gynak. **15**: 485, 1902.
5. Waugh, T. R. and Findley, D.: Mucocele with Peritoneal Transplantation in Adeno-carcinoma of the Appendex.
6. Woodruff, D. J. and Novak, E.: Obst. & Gynec. **15**: 351, 1960.

Figs. on Art Paper V & VI