LIPOSARCOMA OF THE KIDNEY

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Lipomatous mixed tumors of the kidney or perirenal tissues are not rare and those in the latter situation are usually malignant. Although pure lipomas of the kidney are of frequent occurrence, liposarcoma of this organ appears to be rare.

In a review of the literature Fischer, in 1911, found 58 instances of renal tumor associated with tuberous sclerosis. Of these cases, 3 reported by Vogt were called liposarcomas. A search of the literature pertaining to renal tumors has revealed but one instance of pure liposarcoma not associated with tuberous sclerosis. This case was reported by Hartwig.

Hartwig’s patient was a woman, aged thirty-six years, who had had an enlarged abdomen for eight years. Suddenly she became seriously ill and went into collapse. Exploratory operation, with removal of the right kidney and its contained tumor, was done the same day. The patient died shortly after completion of the operation. The mass, which weighed 3500 grams, was of variable consistence and lobulated. Foci of hemorrhage were present within the tumor. Small nodules resembling the large tumor were present in other parts of the kidney. Microscopic examination showed that the tumor was composed largely of pure adult adipose tissue, but scattered through it were cellular foci made up of spindle and round cells and fat-containing cells. Hartwig considered it a lipoma undergoing sarcomatous change.

The case to be reported here showed microscopic features similar to those of Hartwig’s case, but the tumor was much smaller and a different interpretation was made as to its nature.

CASE REPORT

A white woman, thirty-seven years of age, the mother of two children, had had slight intermittent pain in the right side of the abdomen for six weeks. On Nov. 1, 1934, while shopping, she felt some discomfort in the right side of the abdomen and returned to her home, where she was suddenly seized with a violent pain in the right side of the abdomen and back. She had no nausea or vomiting, no chills, and no sensation of faintness.

At no time during the preceding six weeks had she had any disturbance of the gastro-intestinal or urinary organs. Her physician, who was called soon after the onset of the pain, sent her to the hospital, where she continued to have constant, severe pain in the right side of the back and right upper abdomen.

Examination at this time showed a fairly well nourished woman, suffering intense pain. The skin and mucous membranes were not pale. The temperature was 97° F.; pulse 70 per minute; respirations 20 per minute. The left half of the abdomen was soft and not tender. There was some muscle resistance in the right upper abdomen.

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and a large sensitive mass extended from the right costal margin to the brim of the pelvis. There was great tenderness on pressure over the right superior lumbar triangle.

A plain x-ray film showed a large mass in the right side of the abdomen, extending from the lower margin of the liver to the level of the sacro-iliac joint. The right psoas shadow was obliterated. There were no shadows suggesting calculi in the kidney or ureter.

Cystoscopic examination was done and both ureters were catheterized without difficulty. Fifteen c.c. of concentrated urine was withdrawn from the right kidney pelvis, and the patient experienced immediate relief of pain. Bilateral pyelo-ureterograms were made, and on injection of the right kidney pelvis with the contrast medium (20 per cent. siodan) the pain in the right abdomen and back immediately recurred. This was relieved when the kidney pelvis was again emptied. The left pyelo-ureterogram was normal. The right showed a slight rotation of the kidney and displacement of the ureter medially so that it overlay the spine, and the ascending colon was displaced slightly medially and anteriorly. Intravenous urography on Nov. 3 showed no accumulation of dye in the right pelvis. The pelvic organs were normal on bimanual examination.

![Fig. 1. Liposarcoma of the Kidney: Gross Specimen](image)

Urine obtained by catheter on Nov. 1 showed the following findings: specific gravity 1.027; clear; acid reaction; no sugar; heavy trace of albumin; 1 or 2 hyaline casts; 0 to 3 granular casts per high-power field; pus cells 3 to 4; red blood cells 0 to 2.

Blood examination showed white blood cells 18,200; polymorphonuclears 76 per cent.; large mononuclears 3 per cent.; basophils 1 per cent.; eosinophils 0; lymphocytes 20 per cent.

On Nov. 2, at 8 p.m., the patient’s temperature rose to 101° F. On Nov. 5 the right kidney was removed through an incision in the flank. Beneath the kidney capsule, was a large soft tumor which could not be differentiated from the kidney substance. During the dissection of the tumor a finger entered the mass and a large amount of old blood clot was extruded. Convalescence was uneventful. Nothing in the clinical history or physical findings in any way suggested tuberculous sclerosis.

The surgical specimen consisted of a kidney containing a tumor, which replaced the lower pole of the organ. The upper two-thirds of the kidney appeared normal. The tumor was roughly spherical in shape and about 6 cm. in diameter. The external surface showed a slight tendency to be lobulated and was covered by kidney capsule. In no place was there any evidence of perforation of the capsule by tumor. On section-
FIG. 2. Low-power Photomicrograph of Liposarcoma of the Kidney

FIG. 3. High-power Photomicrograph of One of the Cellular Islands Scattered through the Adipose Tissue
ing, the line of demarcation between tumor and kidney substance was quite sharp (Fig. 1). The cut surface of the tumor was mottled red and yellow, the red color being due to the presence of numerous blood clots, most of which appeared to be fresh. Brown staining due to disintegrated blood was not obvious. The yellow portion was somewhat friable but not notably greasy. No areas of necrosis or scar formation were made out. The appearances strongly suggested those so commonly seen in hypernephroma.

Microscopic examination showed that the tumor was largely composed of adipose tissue, scattered through which were irregularly shaped cellular islands (Figs. 2 and 3) made up of cells of varying size and shape. The cytoplasm of many of the cells contained small and large vacuoles. Specific stains showed these to be fat. Transitions

![Fig. 4. Photomicrograph Showing Transition between Tumor and Kidney](image)

from round and spindle-shaped cells containing no vacuoles, through similar cells containing small and large vacuoles, to the adult type of fat cell were readily demonstrated. Occasional mitotic figures were found in cells which did not contain fat. Sections from the line of transition between kidney and tumor showed immature fat-forming cells (Fig. 4). The renal tubules along this line were partially surrounded by tumor cells. In no place was there any suggestion of cord or gland formation. No other type of tissue was found in any section. The microscopic appearances were interpreted as being those of a liposarcoma with a pronounced tendency to differentiate into adult adipose tissue.

Following identification of the tumor as a liposarcoma, the patient was reexamined for any signs of metastasis but none was found. As a precautionary measure deep x-ray treatments were applied over the region of the kidney.

**Summary**

A tumor removed by operation showing the anatomic features of a primary liposarcoma of the kidney is reported.

**References**