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# GIANT-CELL TUMOR OF THE PELVIS AT THE ACETABULUM, ILIUM, ISCHIUM, AND PUBIS

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This is a case of a giant-cell tumor of the acetabulum which was curetted and packed with bone chips. The patient recovered almost normal hip motion and four years later was successfully delivered by Caesarean section. We believe this to be the first such case to be reported.

## CASE REPORT

A fourteen-year-old white girl whose chief complaint was "left hip pain" was first seen on February 12, 1948. The onset of pain had occurred six months previously. The patient's weight had dropped from 106 to eighty-nine pounds.

Examination showed a slender girl who walked with a severe protective left limp, marked abductor lurch and a 15 degree list of the trunk to the right. The spinal motion was notably limited. On abdominal examination a mass, round and not tender, was palpated which extended one inch above the left inguinal ligament.

The patient had the following motion of the left hip: straight-leg raising, 60 degrees; flexion, 100 degrees; adduction, 50 degrees; abduction, none; internal rotation, none; external rotation, 5 degrees.

The results of the remainder of the physical examination were negative. The laboratory findings were within normal limits. A roentgenogram (Fig. 1) showed an area of destruction, irregular in outline, involving the left ilium, ischium and pubis. An area of decreased density was centered above the acetabulum. This area extended laterally from three-quarters of an inch inside the outer acetabular margin; upwards to one and one-half inches above the acetabulum, and downward. The lower margin could not be well traced because here the shadow of the pubis overlapped the ischium. A large, elongated, elliptical mass of joint calcification could be seen medially to this area of bone destruction. This calcification was denser at its edges. The medial edge of the mass extended to the mid-line, inferiorly to within one-eighth inch of the superior rami, superiorly to the first sacral segment.

Based on this roentgenographic appearance a diagnosis of giant-cell tumor of the ilium, ischium, and pubis at the acetabulum was made. No other diagnosis was entertained.



FIG. 1



FIG. 2

Fig. 1: First roentgenogram made March 4, 1948. Note area of bony destruction about the acetabulum and the wall of the cyst extending almost to the mid-line.

Fig. 2: Roentgenogram made March 2, 1949, one year after operation. The consolidation of bone chips is now complete.

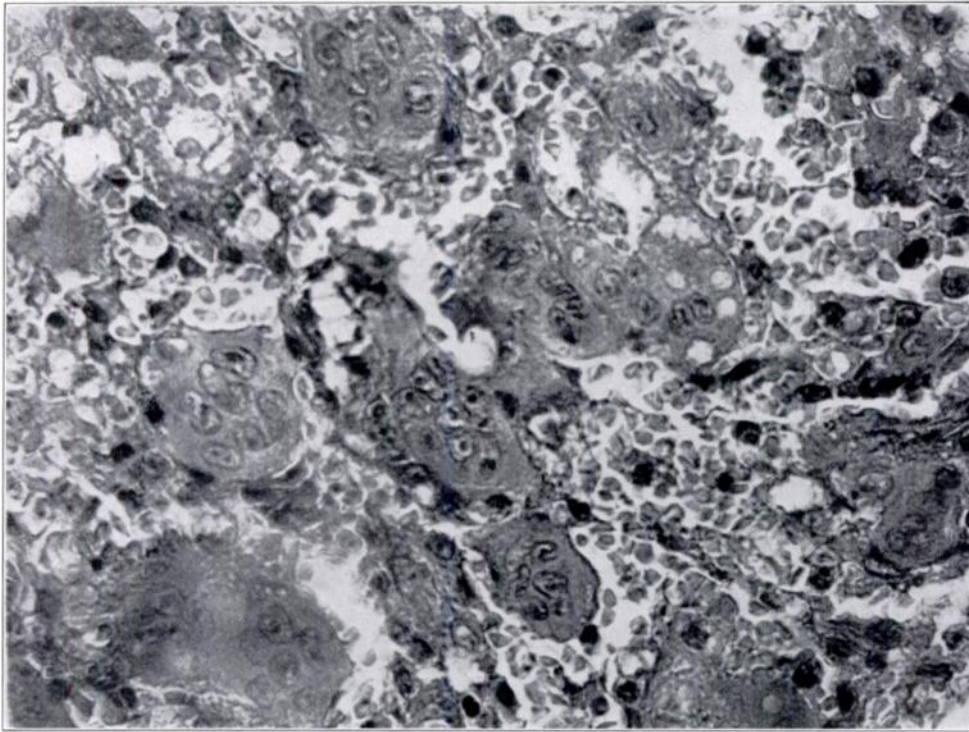


FIG. 3

Photomicrograph ( $\times 600$ ) of a representative section of the giant-cell tumor removed from the ilium above the acetabulum. The giant cells and stroma are typical.

The patient was admitted to The McLeod Infirmary and, after consultation with the general surgical department on the question of operative approach, the operation was performed on March 5, 1948. An extensive Smith-Petersen incision was made. The extremely thin-walled, cyst-like mass was quickly entered above the acetabulum because the bony shell was eroded. The mass looked and felt like a typical giant-cell tumor. It was filled with dark blood and pulpy tissue, perhaps a little firmer than granulation tissue. Pieces of this tissue were grayish-red to dark red and contained bone. In the tissue were some smooth-lined cysts up to one centimeter in diameter enclosed in thin bony walls.\*

After all this tissue had been cleaned out, the exact extent of the giant-cell tumor was studied.

The cyst extended exactly to the mid-line. The wall of the cyst here was thick enough to make it possible to curette gently and avoid entering the peritoneal cavity. The cyst extended to within one-quarter of an inch of the symphysis pubis and as high as the first sacral segment (Fig. 1). The extent of bone destruction was greater than the roentgenogram would lead one to believe. The bone destruction extended down to the acetabular cartilage which was exposed from a point three-quarters of an inch from the outer edge of the acetabulum medially and inferiorly as far as the eye could see or the finger could feel. The destruction extended medially around the rim of the pelvis. Superiorly it extended one and three-quarters inches above the acetabulum. The cyst wall extended two inches higher. The entire area of bone destruction and the cyst wall were curetted, very gently on the medial side near the mid-line.

Part of the wing of the ilium was removed and prepared as bone chips, three-sixteenths to five-sixteenths of an inch in diameter. A total of about six ounces of chips was packed into the entire area of bone destruction and of the cyst. A good deal of oozing of blood occurred during the operation. Five hundred cubic centimeters of five per cent. glucose in normal saline and 500 cubic centimeters of citrated blood were given intravenously during the operation.

Convalescence was uneventful. A spica cast was applied before discharge from the Hospital fifteen days after operation. The cast was removed seven weeks after operation. The patient was allowed up on crutches three and one-half months after operation. She gained weight rapidly. The limp and the pain disappeared. Hip motion increased rapidly.

One year after operation the roentgenogram (Fig. 2) showed great consolidation of the bone chips. The patient walked, unaided, without limp or trunk list. Hip motion was nearly normal.

On September 17, 1951, the patient was seen again. She was now seventeen years old, married and five

\* See report of the pathologist.

months pregnant. Examination of hip motion showed the following: straight-leg raising, 85 degrees; flexion, 110 degrees; abduction, 10 degrees; adduction, 50 degrees; internal rotation, 5 degrees; external rotation, 25 degrees.

A normal baby was delivered by Caesarean section on January 15, 1952. Convalescence was uneventful.

#### REPORT OF THE PATHOLOGIST

The specimen consisted of a number of grayish-red to dark red pieces of pulpy tissue in which there was bone.

One of the sections of tissue measured 2.3 by 2.1 by 1 centimeters. There were two small smooth-lined cysts in this tissue each of which measured about one centimeter. About half of each cyst wall was present. There was a thin bony shell about the walls of the cyst. These cysts were enclosed in pulpy dark-red tissue.

An island of bone that measured 1.8 by 1.5 by 0.5 centimeters, contained two cysts that measured respectively 0.3 and 0.5 of a centimeter.

#### *Microscopic*

Sections of the tissue from the ilium showed a fibrocellular matrix in which there were numerous giant cells. These giant cells appeared to develop in the fibrous matrix. They showed round to ovoid granular nuclei and an acid-stained cytoplasm. The fibrous tissue was cellular in places and showed numerous small vessels. There were extensive areas of hemorrhage and some bony spicules along which osteoblasts appeared in normal arrangement. Within these bony spicules there were regularly dispersed bone cells of regular size, shape, and staining quality.

In some areas the substance of the tumor appeared very vascular with numerous blood spaces that were lined by flattened compressed endothelium. About them there was a type of stroma described above containing giant cells, some round cells resembling lymphocytes, and cells which suggested endothelial structure because of the relationship to the vessels.

#### *Diagnosis*

Benign giant-cell tumor of left ilium.