

# PARATHYROID ADENOMA TREATED WITH X-RAY AND SURGERY

## *Report of a Case*

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The purpose of this report is to present a case of parathyroid adenoma removed surgically after treatment elsewhere with x-ray. Although surgical excision is the commoner treatment of adenoma of the parathyroids, cases in which irradiation to the parathyroid region has brought about some improvement have been reported. Merritt and Lattman<sup>1</sup> reported seven cases in which irradiation produced not only symptomatic relief but also some regression of bone changes. However, it is possible that parathyroid lesions treated with x-ray may not be true adenomas. This case offered an opportunity to examine a true adenoma removed by excision after treatment with x-ray and to consider changes possibly produced in the gland by irradiation.

### CASE REPORT

A white woman, aged 40, was first seen on September 25, 1943. She complained of a lump in her jaw. In 1936 she noted a swelling in the left mandible, which slowly increased in size. In 1939 a tender tumor appeared on the right jaw, and the patient, who was an active, alert person, became lethargic and easily fatigued. In May 1940 she

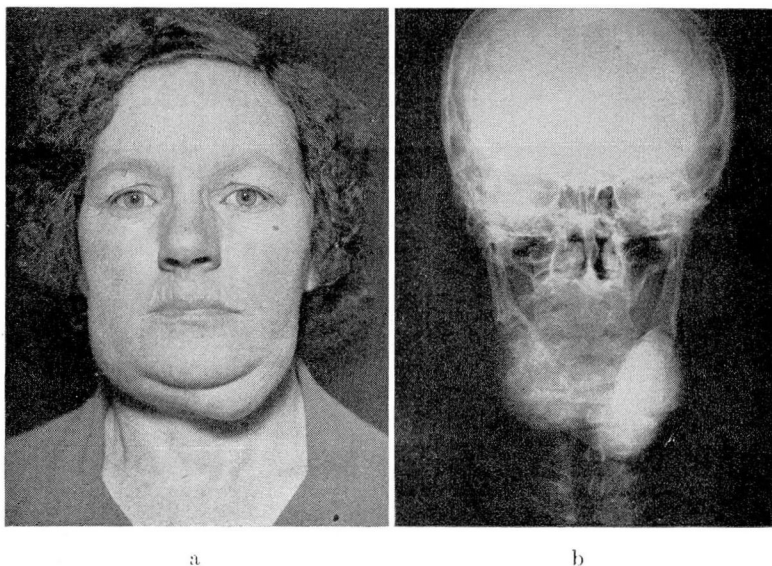


FIG. 1. (a) Photograph of patient demonstrating tumors of the mandible.  
(b) X-ray showing bilateral cysts of mandible. There has been no change in these to date.

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received an unknown amount of irradiation to the entire jaw and over the neck generally, and thereafter she thought that she was less drowsy.

In 1942 she became extremely nervous, irritable, and emotionally unstable and frequently had severe left frontal and parietal headaches, which continued until her admission to the hospital on November 2, 1943.

Physical examination revealed a well developed, well nourished woman with tumors of both rami of the mandible, more severe on the left. There was a scar over the left tumor at the site of an old curettement. Other physical findings were within normal limits.

Laboratory studies showed the urine to contain 15 to 18 pus cells per high power field. Hemoglobin was 74 per cent (Haden-Hausser), leukocyte count 5700, serum calcium 11.8 mg. per 100 cc., serum phosphorus 1.9 to 2.1 mg. per 100 cc., serum protein 5.8 Gm. per 100 cc., and serum phosphatase 1.7 units; Wasserman and Kahn tests were negative. X-ray film of the mandible revealed an expanding cystic lesion of both rami measuring about 4 by 7 cm. K.U.B. and pyelograms revealed calculi in the right kidney pelvis and gallbladder.

A diagnosis of adenoma of the parathyroid was made, and the patient's neck was explored.

At operation two parathyroid glands were found in each lobe of the thyroid. A lesion, which appeared to be an adenoma of the thyroid, was excised from the posterior



FIG. 2. K.U.B. showing calcification in right kidney.

lateral aspect of the right inferior lobe. The specimen measured approximately 1.5 cm. in diameter and had a thick, fibrous capsule containing small areas of calcification; the center had undergone partial cystic degeneration and contained soft brownish yellow tissue. Microscopic examination revealed this to be a partially degenerated parathyroid adenoma.

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On the first postoperative day the serum calcium was 10.2 mg. per 100 cc. and the serum phosphorus 3.2 mg. per 100 cc. Chvostek's sign was present and Trousseau's sign absent. The patient complained of some tingling in both hands and feet and about the mouth. On the second postoperative day the serum calcium level fell to 9.0 mg. per 100 cc., and the serum phosphorus rose to 3.5 mg. per 100 cc. There was a moderate increase in severity of the tingling of hands and feet and in circumoral numbness, which was relieved by intravenous administration of 10 cc. of 10 per cent calcium gluconate. She required no further calcium therapy and made an uneventful recovery.

TABLE 1—Calcium, phosphorus, and protein levels of serum before and after operation.

Date	Calcium	Phosphorus	Protein
9-22-43	11.8	2.1	
11-3-43	11.0	1.9	5.8
11-8-43	11.8	2.0	5.8
Operation	...	...	...
11-9-43	10.2	3.2	5.6
11-10-43	9.0	3.5	5.4
11-11-43	9.8	2.9	5.5
11-12-43	9.3	3.2	...
11-13-43	10.0	3.2	...
11-15-43	10.2	3.2	...
11-16-43	10.6	4.3	...
11-18-43	10.0	3.4	...
11-19-43	10.5	3.1	...
1-18-44	11.0	2.1	...
1-20-44	10.7	2.5	...

The patient made follow-up visits on January 20 and March 15, 1944. X-ray films showed no change in the kidney lesion or the bone lesions on the mandible. Subjectively she was improved. Symptoms present at hospital admission including headaches had disappeared. On March 15 she still noticed tingling of her hands and about the mouth and occasionally had some twitching of the left side of the face when excited, but later these disappeared.

DISCUSSION

This patient presented a typical picture of hyperparathyroidism with definite cystic bone changes, urinary calculi, and lethargy and drowsiness. After irradiation the drowsiness disappeared, but symptoms of numbness, irritability, and emotional instability developed. After removal of the parathyroid tumor all these symptoms disappeared.

Grossly the adenoma resembled a degenerated thyroid adenoma, presenting areas of fibrosis, calcification, and partial cystic degeneration. It is a matter for speculation whether or not these degenerative changes were secondary to x-ray therapy.

REFERENCES

- Merritt, E. A., and Lattman, I.: X-ray treatment in hyperparathyroidism. *Radiology* 26:673-679 (June) 1936.