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HYPERPARATHYROIDISM AND PREGNANCY A REVIEW OF TWO CASES

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INTRODUCTON

Hyperparathyroidism is rarely observed in association with pregnancy. Two cases of primary hyperparathyroidism in pregnancy have been diagnosed and treated in the last seven years at the Ghaem Medical Center in Mashad. A total of ten cases of primary hyperparathyroidism have been diagnosed during this period. Both cases associated with pregnancy were treated surgically and both patients gave birth to a normal baby by cesarean section at term.

CASE ONE

In 1979, a 30 year old female was admitted with generalized bone pain. The pain had increased gradually in the three years prior to admission. Deformity had developed in her right hand and she had slight polyuria and polydipsia. The patient had no history of renal stones and had no relevant family history. She had had six pregnancies, has three living children and was three months pregnant on admission.

The patient's physical examination revealed a pulse rate of 80, blood pressure of 100/60, and body weight of 40 kg. All teeth had been extracted and she had bone deformities. There were no goiter or palpable nodes in her neck. Laboratory evaluation revealed a hemoglobin of 13.4 g/dl, WBC of 7400, an ESR of 29 mm in the first hour, and total protein of 11.4 g/dl with 65% albumin and 35% globulins. Her serum thyroxine level was normal, and calcium was 13.4 and 13.6 mg/dl on two occasions. Phosphorus was 2.4 and 2.7 mg/dl, alkaline phosphatase was 27 twice (normal, 0.8-3 units), and her 24-hour urine calcium and phosphorus were 226 and 920 mg respectively.

Radiological evaluation showed severe osteoporosis, subperiosteal resorption and bone cysts. A "salt and pepper" appearance of the skull was characteristic. (Figs. 1, 2, & 3).

A bone biopsy was performed from the anterior iliac crest. Histologic examination revealed a reduction in the number of trabeculae, increased multinuclear osteoclasts, lacunae formation and increased fibrous tissue (Figs. 4,5).

The diagnosis of hyperparathyroidism was made on clinical, biochemical, radiological and bone biopsy studies. Surgery was suggested but the patient did not give consent due to fear of losing her child.

The patient was admitted again after three months while she was five months pregnant. She had developed

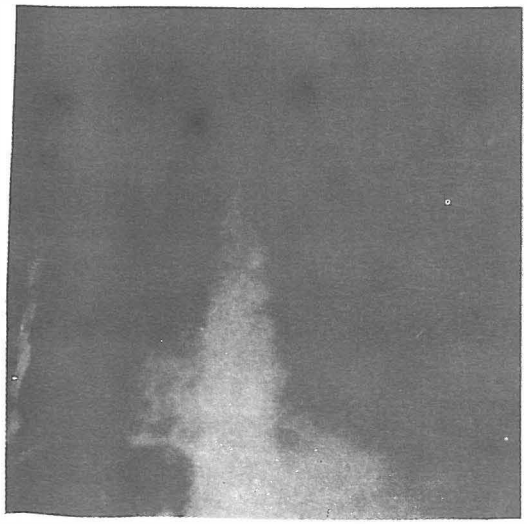

Fig. 1. Chest roentgenogram reveals generalized osteoporosis.

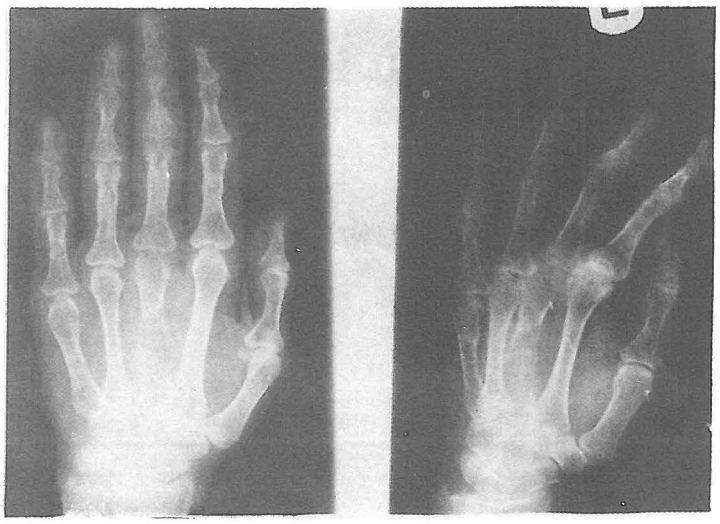

Fig. 2. X-ray of the hands. Subperiosteal resorption is evident.

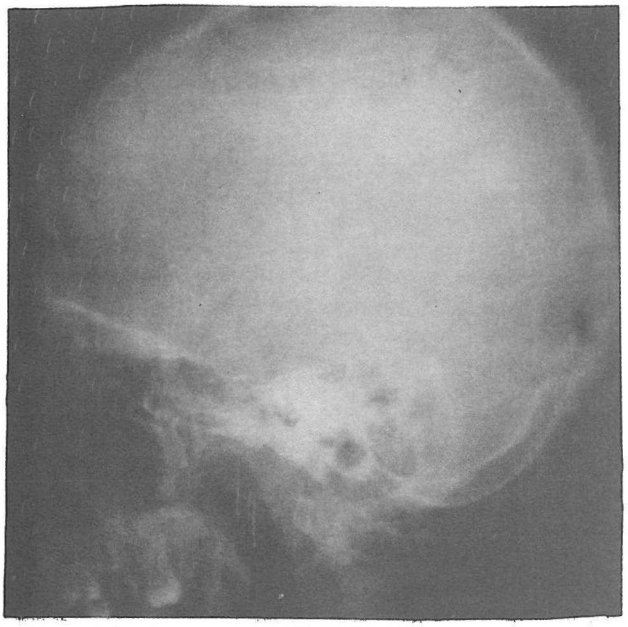

Fig. 3. Skull roentgenogram demonstrating "salt and pepper" appearance.

Fig. 4. Bone biopsy (low magnification). Reduction of trabeculae, increased multinucleated osteoclasts and lacuna formation with increased fibrosis is seen.

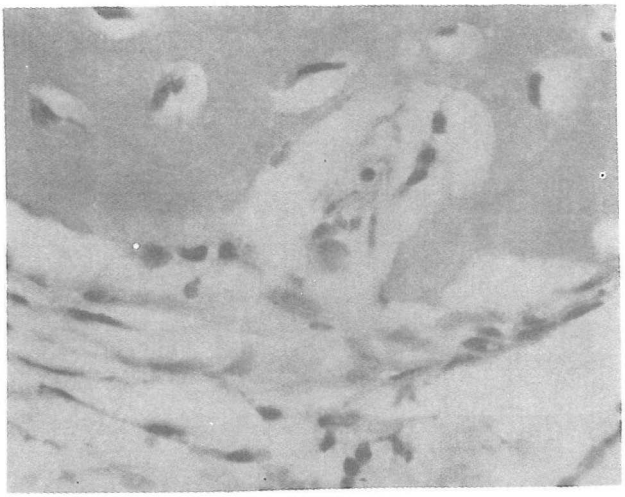

Fig. 5. Bone biopsy under higher magnification.

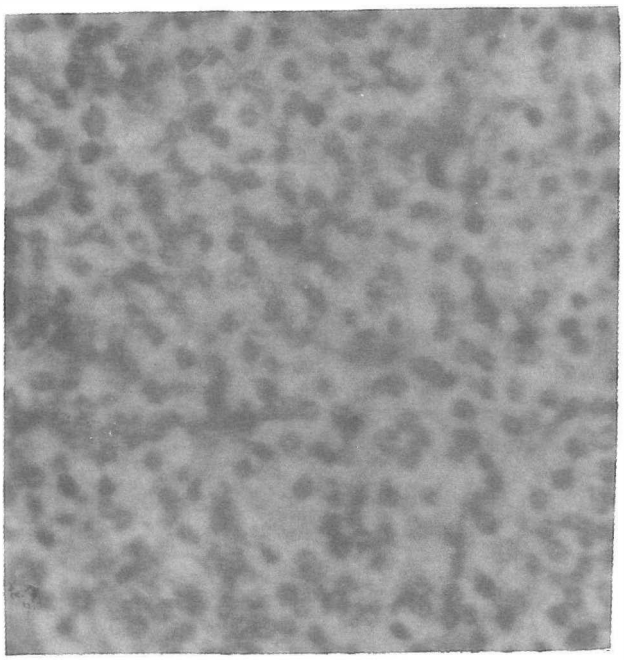

Fig. 6. Microscopic view of removed parathyroid adenoma.

a pathologic fracture in her left thigh and right forearm. Laboratory evaluation confirmed the diagnosis of hyperparathyroidism. Surgery was undertaken and in the second surgical exploration of the neck, a large adenoma measuring approximately 5× 5 cm was removed from the right anterior part of the thyroid gland (Fig. 6). On the day after the operation, she developed hypocalcemia and tetany and required calcium and vitamin D replacement for several months.

In her ninth month of pregnancy, the patient, showing dramatic improvement, gave birth to a child weighing 3.2 kg by cesarean section. Neither mother nor child had any complications. The patient left the hospital with significant improvement of osteoporosis and fractures.

CASE TWO

A 38 year old female, gravida 4, para 4, was admitted in 1983 with severe bone pain, fatigue, and inability to walk. Her symptoms had begun 18 months prior to admission and had progressed continuously. She had later complained of constipation and thirst also. The patient was four months pregnant on the date of the admission.

In her physical examination, pulse rate was 100 and blood pressure was 100/70. She had lost weight and was unable to walk. The size of the uterus corresponded with the fourth month of pregnancy. No further noteworthy signs were elicited.

Radiologic evaluation revealed osteoporosis, cystic

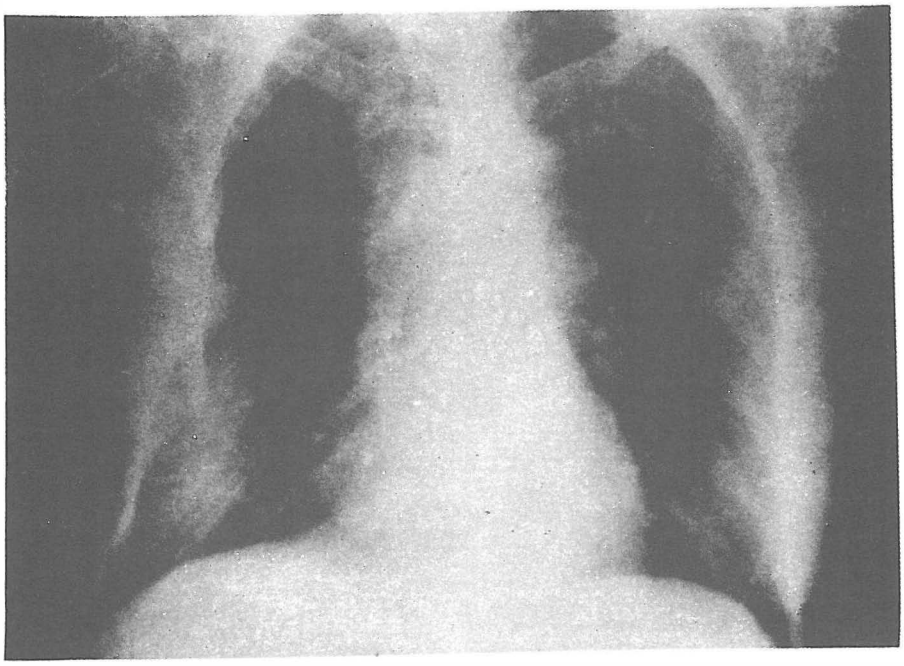

Fig. 7. Chest X-ray revealing osteoporosis.

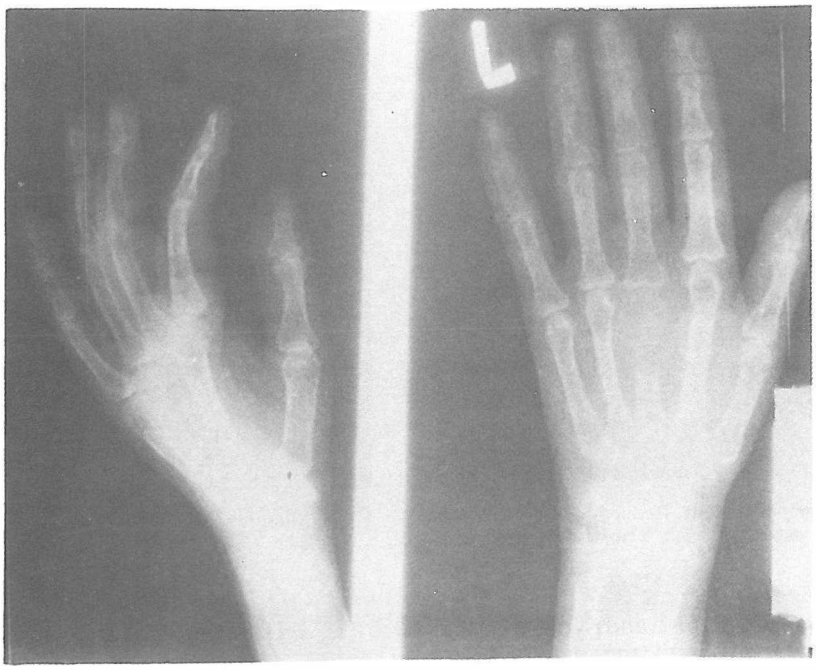

Fig. 8. X-ray of the hands, demonstrating loss of lamina dura.

lesions and loss of lamina dura (Figs. 7 and 8). Laboratory evaluation revealed the following: Hb, 13.4 g/dl; WBC, 4400 with a normal differential; ESR, 20mm; glucose 84 mg/dl; BUN, 24 mg/dl; uric acid, 4.9 mg/dl; cholesterol, 167 mg/dl; triglycerides, 103 mg/dl; Na, 137 meq/l; K, 3.7 meq/l; bicarbonate, 22 meq/l; and chloride 110 meq/l. Her total protein was 7 g/dl, with 50% albumin, 5% alpha$_1$, 4% alpha$_2$, 19% beta and 12% gamma globulin. Serum calcium was 9.8, 9.1, 7.8 and 8.5 mg/dl on various occasions. Serum phosphorus was 2.4, 3.7, 3.6 and 2.2 mg/dl. Alkaline phosphatase was 18 and 18.9 units on two occasions (normal, 0.8 - 3 units). 24-hour urine calcium was 30 mg.

Bone biopsy studies (from the anterior iliac crest) revealed decreased bone trabeculae, increased osteoblastic and osteoclastic activity, and osteitis fibrosa cystica (Figs. 9 and 10).

The patient gave consent to surgery (parathyroidec-

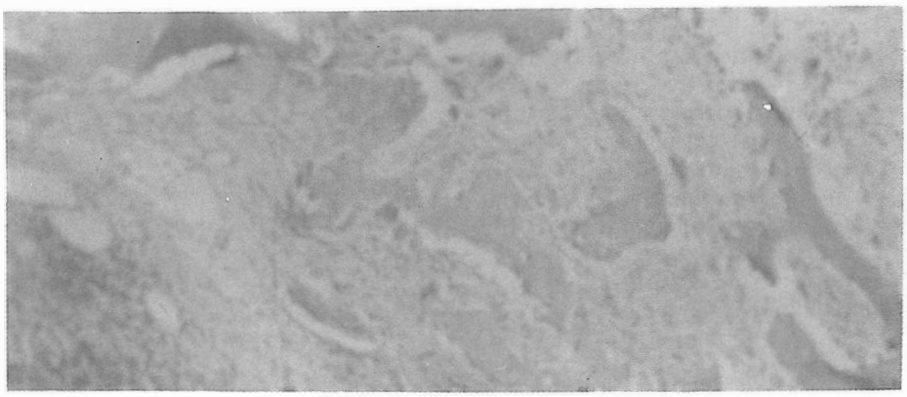

Fig. 9. Bone biopsy. Decreased bone trabeculae, increased osteoblastic and osteoclastic activity is seen. Osteitis fibrosa cystica is also noted.

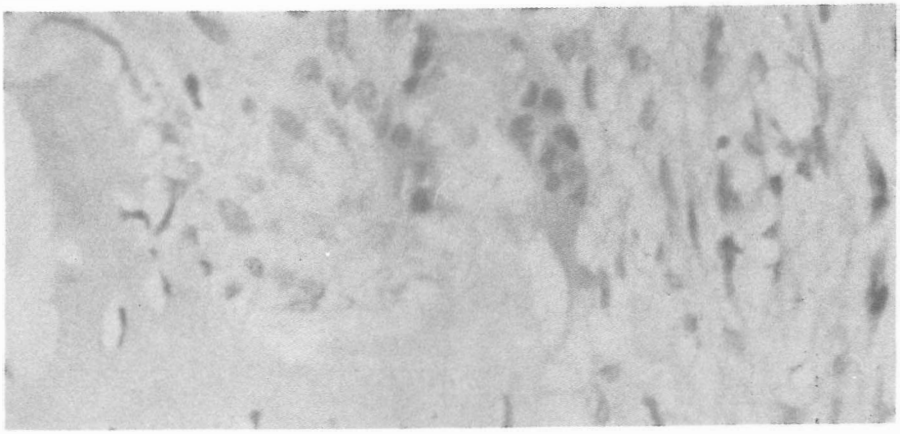

Fig. 10. Bone biopsy (high magnification).

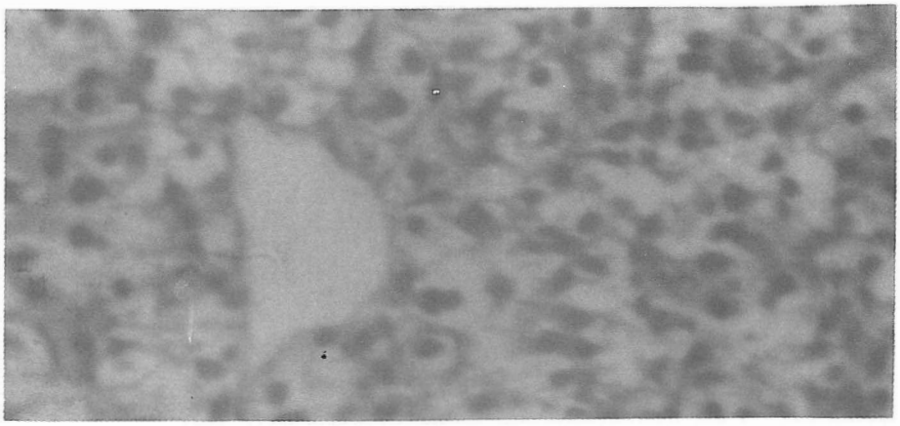

Fig. 11. Microscopic view of parathyroid adenoma removed from patient two.

tomy) while she was six months pregnant. An adenoma measuring 1.5×1.2×1 cm was located in the right lower lobe of the thyroid gland, and was successfully removed (Fig. 11). She developed hypocalcemia and tetany after surgery, requiring calcium and vitamin D therapy for several months. Her symptoms gradually improved, she gained weight, and was relieved of bone pain.

She eventually gave brith to a 2.6 kg baby via cesarean section at term. Post-delivery course was uneventful.

DISCUSSION

About 40 cases of hyperparathyroidism have been reported in the literature in association with or aggravated by pregnancy.[1] Peti and Clark were the first to

remove a parathyroid adenoma in a pregnant woman. Since then, several cases have been successfully managed. The most common complications have been renal calculi, skeletal disease and hyperemesis gravidarum. Our patients presented with skeletal symptoms that were aggravated with the onset of pregnancy. Osteopenia and osteitis fibrosa cystica were very severe and significant. In our experience with ten consecutive cases, we have noted that bone disease and even pathologic fractures are very common, in contrast with cases reported from western countries.[2] We did not have facilities available to us to measure parathyroid hormone levels and were dependent upon clinical, biochemical, and histological and radiological data for diagnosis.

Both of our patients, who were operated on in the 5th and 6th months of pregnancy, responded very well to surgical treatment.

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