DISAPPEARANCE OF METASTATIC CALCIFICATION IN HAND WITH RENAL OSTEODYSTROPHY

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Metastatic calcification in chronic renal failure occurs commonly in the arteries and articular or periarticular region, such as tendons, bursae, and menisci. The arterial calcification is manifested roentgenographically as tram line pattern, with continuous or segmental, parallel calcific streaks corresponding to the course of the arteries involved, or as ring sign transversely. Calcium salt deposits chiefly in the internal elastic lamellae of the intima and in the media. The articular or periarticular calcification is usually represented by an ill-defined, dense, amorphous radiopacity. Seen at anywhere in the body, it is generally accepted that the arterial calcification is best detected in the hand, especially between and along the phalanges and metacarpals. Metastatic calcification in the joints and adjacent soft tissues is most often revealed in the shoulders and hands.

Although exact mechanism is unknown, the ectopic calcium deposition is someway related to the supersaturation of the calcium in serum, a high [Ca]×[P] product over 70 mg/100 ml, which is caused by compensatory increase of PTH secretion into serum. According to Katz et al. (1969), this may be only one of the many factors involved.

As for the arterial calcification, which may regress after successful renal transplantation or early parathyroidectomy (GRIFFITHS, 1976), Katz et al. (1969) mentioned that no complete disappearance was obtained but a slight improvement in small vessels after parathyroidectomy. On the other hand, the periarticular and articular calcification is usually transient and may on occasion be nearly completely improved with high calcium phosphate ratio in the diet and the maintenance of a normal serum phosphate with oral administration of alminium hydroxide (COHEN et al., 1970) as well as parathyroidectomy (KATZ et al., 1969).

Griffiths (1969) supposed that the cause of calcification in the articular and periarticular tissue is somewhat different from that of the vascular calcification. He also suggested the different nature of physiological calcification and dystrophic calcification that occur in patients with chronic renal failure, with the latter having more tendency to resist treatment.

The patient (R.N.), 57 years old male, was diagnosed as chronic renal failure in 1974,
and has been treated with maintenance hemodialysis since November in 1977. Two years later, the roentgen examination of his hands revealed multiple, homogenous, amorphous radiopacities in the periarticular regions, suggesting calcium deposition in the bursae or tendons (fig. 1 and 2). No resorptive change characteristic to renal osteodystrophy is noticed in the digital bones. However, this calcification had disappeared nearly completely on one year after roentgen examination (fig. 3), including xeroradiogram (fig. 4). During this period the patient had received no specific treatment other than routine maintenance hemodialysis and oral administration of vitamin D₃.

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