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Background

Secondary hyperparathyroidism is a serious and expected complication in almost every patient with chronic kidney disease (CKD). Nevertheless brown tumors formed by osteoclasts are rarely found in this subtype of patients and are extremely rare in children with CKD. The most common localizations of brown tumors are the jaw and long bones.

Objective

We aimed to present three clinical cases of brown tumors in children with CKD on hemodialysis observed in a single dialysis center for a period of 30 years.

Materials and Methods

Three children with CKD on hemodialysis were diagnosed as having brown tumors using clinical, laboratory and instrumental methods of investigations.

Results

4 years after the initiation of the hemodialysis treatment the first child presented with pain in the bones with valgus deformation in the knee joints. After 1 and a half year two brown tumors were found in the lower and upper jaw which grew up to 6 and extended to the facial bones with cyst-like bone lesions. Their size ranged between 1 and 8 cm. The laboratory results showed relative hypercalcemia, hyperphosphatemia, elevated alkaline phosphatase, serum parathyroid hormone (PTH) levels elevated 25 times more than the reference range. On ultrasound examination there was a hyperplasia of the right inferior parathyroid gland. In the second child 4 years after the initiation of the hemodialysis treatment there was pain in the bones with valgus deformation in the knee joints. After 1 year two brown tumors were found in the lower jaw which size was around 1 cm. The laboratory and radiographic results were similar to that in the first child and on ultrasound examination there was a hyperplasia of the two inferior parathyroid glands. The third child presented with pain and tumor formation in the upper part of the right femur 4 years after the initiation of the hemodialysis and soon after a lesion in the upper left femur appeared (fig. 1). The MRI results confirmed the diagnosis of brown tumors.

Conclusion

Brown tumors are a very rare complication in children with CKD on hemodialysis and should be taken in mind in cases of bone pain and deformities. Laboratory and imaging methods of investigations should be used when suspecting the diagnosis and histological examination could be used to confirm their presence in the bones.



Fig. 1. Tumor formation in the upper part of the right and left femur