

Prophylactic therapy with fibrinogen concentrate prevents recurrent pain episodes, but not radiological deterioration, in two cases having bone cysts as a rare complication of afibrinogenemia

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Introduction

Afibrinogenemia is an autosomal recessive disease with an estimated prevalence of approximately one in a million. Bone cysts, a rare complication of afibrinogenemia, have been previously described in six patients. Four of these patients suffered from pain in their limbs. Bone cysts were primarily located in the vicinity of the cortex or trabeculae in the diaphysis of long bones, especially in the femora, tibiae, and humeri. Some were regressive, probably due to reactive bone remodeling. A number of cysts were filled with serosanguinous fluid. No treatment for bone cysts in afibrinogenemia has been described so far.

Objective

We report the effects of prophylactic treatment with fibrinogen concentrate on pain and radiological development of bone cysts.

Material and Methods

Retrospectively, we gathered data of these two cases on prophylaxis use, pain, and development of the bone cysts.

Results

Case	Gender	Age	Treatment (fibrinogen concentrate)	Effect of treatment on bone pain and cyst development
1	Male	10-12 years	60 mg/kg 1x per week	Bone pain disappeared
		12-16 years	60 mg/kg 1x per 3 weeks	No bone pain, unchanged cysts
2	Female	5-6 years	100 mg/kg 1x per week	Bone pain disappeared, unchanged cysts
		6 years	100 mg/kg 2x per week (6 months)	No bone pain, no radiological improvement
		6-8 years	100 mg/kg 1x per week	No bone pain, increase in cyst size
		8-11 years	50 mg/kg 2x per week	No bone pain, increase in cyst size (due to growth)

The first case is a 16 years old boy diagnosed with congenital afibrinogenemia (FGA c.510+1G>T) presented with fluctuating pain in both legs since the age of 4.5 years. MRI at the age of 9 years showed multiple cysts in both tibiae, humeri and femora (figure 1). A biopsy confirmed the presence of simple bone cysts without aneurysmatic walls. At the age of 10 years prophylactic treatment with 60 mg/kg fibrinogen concentrate once weekly was started and adapted to once every three weeks a few years later. Immediate pain relief was reported after every infusion of fibrinogen, but no radiological improvement was seen.

The second case is a 10 years old girl having afibrinogenemia (FGA c.711dup) who had also experienced frequent periods of unexplained pain in her lower legs since the age of 4. MRI at 5 years old revealed bone cysts in both tibiae, femora, and her right humerus (figure 2). Since the age of 5 years she received prophylactic treatment with 100 mg/kg fibrinogen concentrate once weekly. Pain disappeared, but no radiologic improvement was seen. Increase of prophylaxis to 100 mg/kg twice weekly did not result in radiologic improvement. Due to pubertal growth, prophylaxis frequency was increased to twice a week.

Conclusion

In patients with congenital afibrinogenemia who complain of pain in their limbs, it might be useful to check for bone cysts. Whole body MRI is the diagnostic imaging modality of choice. Recurrent pain can be prevented by treatment with fibrinogen concentrate but this has little impact on radiological deterioration.

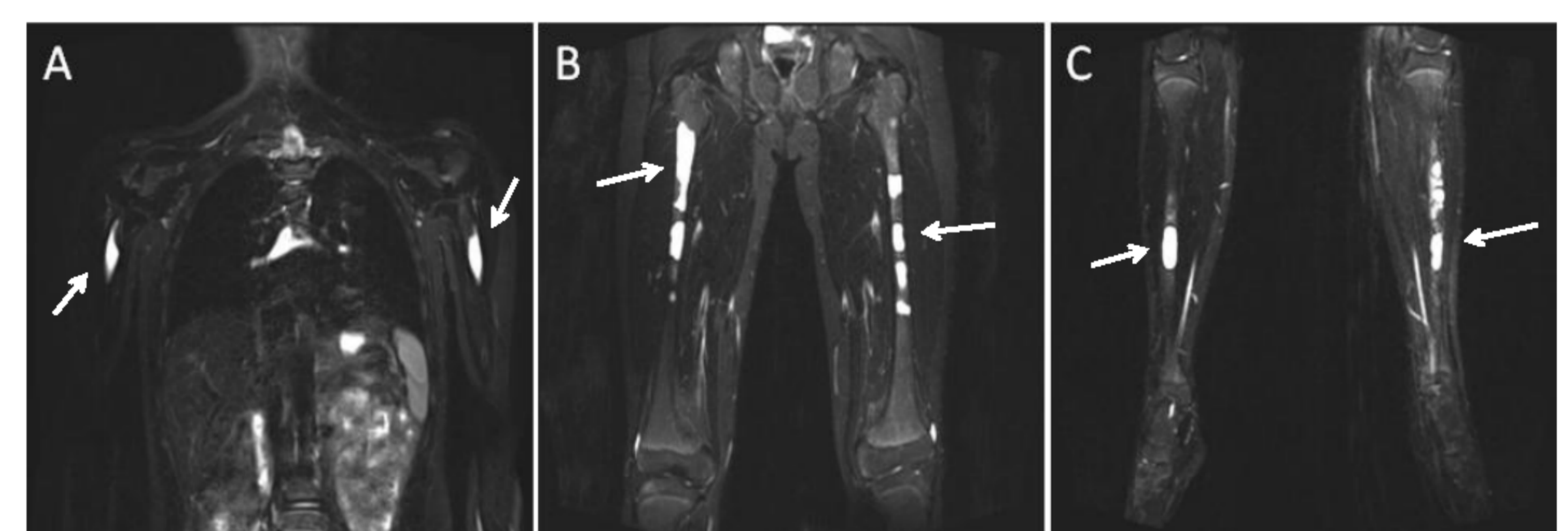


Figure 1. T2-weighted fat saturated MRI images of a 16-year-old boy has several cysts (depicted in white) in both humeri (A), femora (B), and tibiae (C).



Figure 2. T2-weighted fat saturated MRI images of a 10-year-old girl having cysts in the diaphyses of her right humerus (A) and ulna (B), and in both femora (C) and tibiae (D).

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