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Bone Tumors with Aneurysmal Content: Decision Algorithm in Primary Surgical Treatment

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Abstract

Introduction: Several benign and malignant bone tumors have aneurysmal content. Primary ABC (aneurysmal bone cyst), secondary aneurysmal bone cyst, and telangiectatic osteosarcoma are the most common. Confrming diagnosis of biopsy of cystic tumors with aneurysmal content was a dilemma because it was di f cult to obtain adequate pathological fracture, a score between 0 and 8 was generated.

Results: The threshold established to discriminate the need for biopsy was 3.5 (sensitivity 88.9%, specifcity 90%, positive predictive value 88.9%, and negative predictive value 90%). Benign tumors, such as primary ABC (10 cases), scored 2 – 4; secondary ABC (7 cases) scored 3-7; and telangiectatic osteosarcoma (2 cases) scored 6.

Conclusion: According to our fndings it is possible to remove some tumors with aneurysmal content without prior biopsy using the decision algorithm, whose criteria were based on the features that needed the most attention. The algorithm scores from 0-8, separates lesions into lower and higher aggressiveness, indicates cases that require biopsy

Literature Review

Primary Aneurysmal Bone Cyst

Type I:

Type II:

Type III:

Type IV:

Type V:

Initial phase:

Growth phase:

Stabilization phase:

Healing phase:

Telangiectatic Osteosarcoma

Decision Criteria Based On e Literature Review

1. Age group under 18 years:

2. Major sites of telangiectatic osteosarcoma:

3. Aneurysmal tumors in the spine:

IA lesion,

IB lesion,

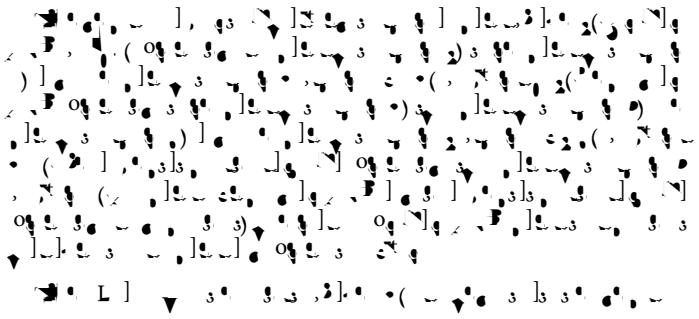
IC lesion,

type II

type III

Statistical Analysis

Results



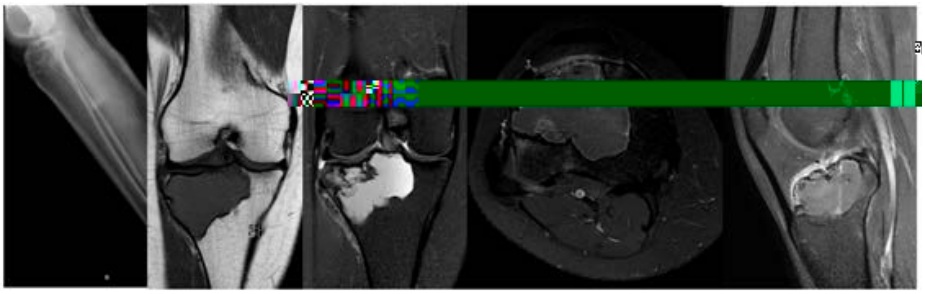
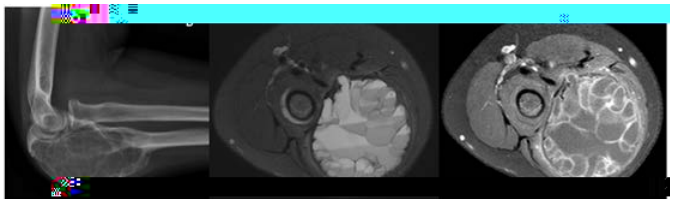


Figure 2: ABC, female, 33 years old, proximal tibia, type IA (radiography and MRI), fuid-fuid level ≥2/3, and small incomplete fracture. Score 3



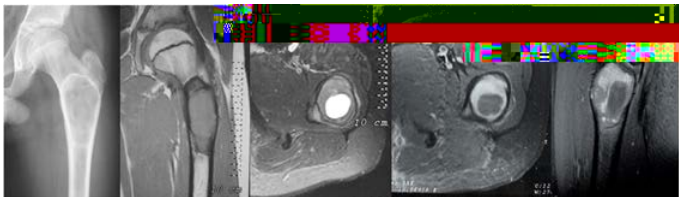


Figure 3: ABC, female, 12 years old, proximal ulna, type IB (radiography and MRI), flled with fuid-fuid level, no solid component, no aggressive imaging characteristic, no fracture. Score 2.

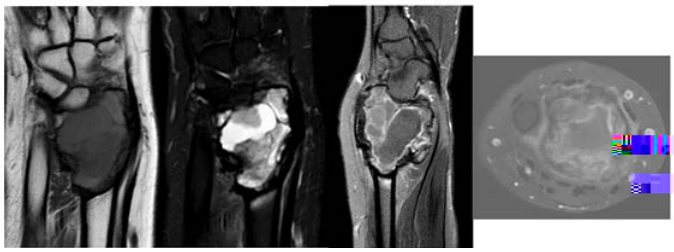


Figure 4: Giant cell tumor, male, 24 years old, distal radius, type IB (MRI), fuid-fuid level ≥ 2/3, solid component, perilesional bone edema, no fracture. Score 3.

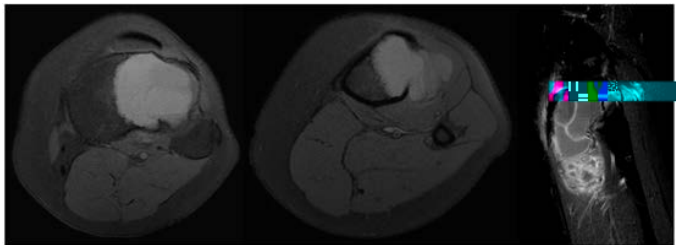


Figure 5: ABC, female, 29 years old, proximal tibia, type IC (MRI), fuid-fuid level ≥ 2/3, solid content, soft tissue mass, no fracture. Score 4.

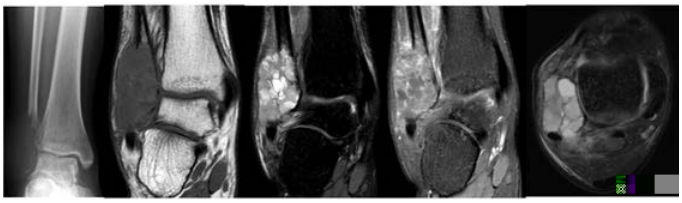


Figure 6: Giant cell tumor, male, 19 years old, distal fbula, type IC (radiography and MRI), fuid-fuid level >2/3, solid component, periosteal reaction, no fracture. Score 4.

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