ΜΟΝΗΡΕΙΣ ΚΑΙ ΑΝΕΥΡΥΣΜΑΤΙΚΕΣ ΚΥΣΤΕΙΣ ΣΤΗΝ ΠΑΙΔΙΚΗ ΗΛΙΚΙΑ

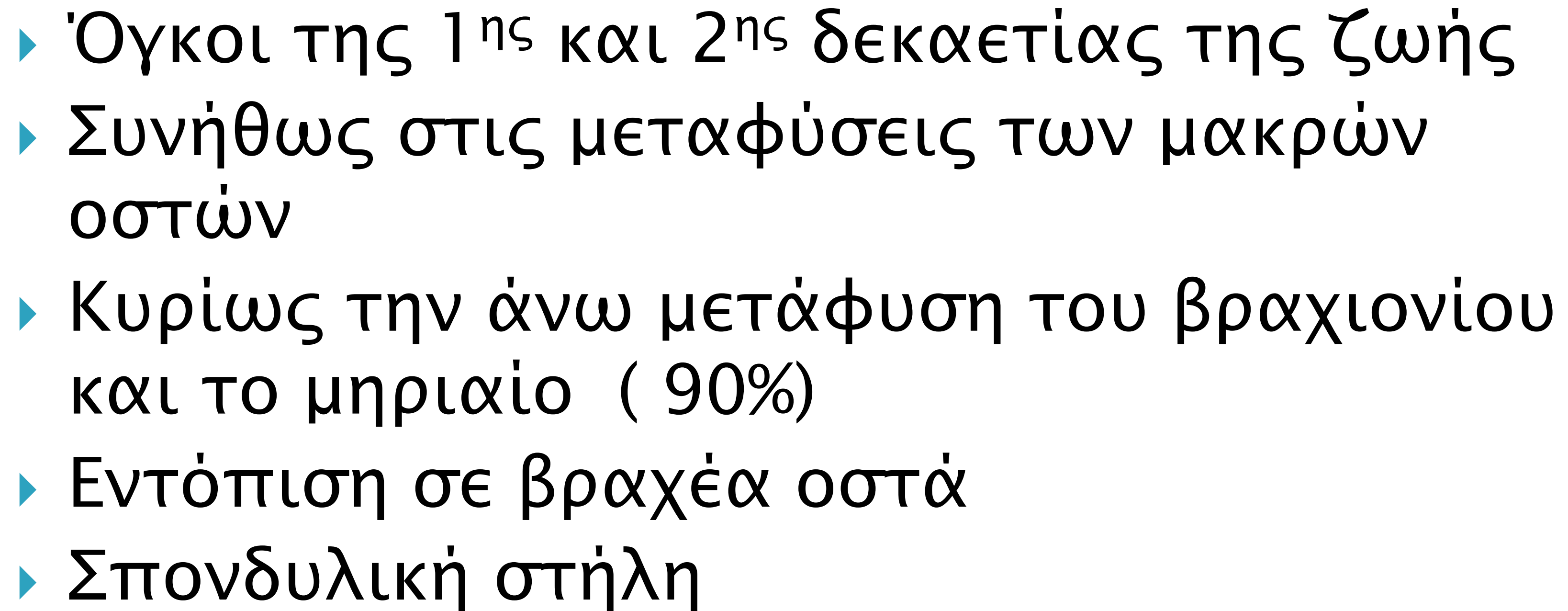
Νικόλαος Λαλιώτης
M.Ch.Orth
τ Επίκουρος Καθηγητής Ορθοπαιδικής – Ορθοπαιδικής Παίδων

Ιατρικό Διαβαλκανικό Κέντρο Θεσσαλονίκη

ΜΟΝΗΡΕΙΣ ΑΝΕΥΡΥΣΜΑΤΙΚΕΣ ΚΥΣΤΕΙΣ

- Καλοήθεις οστικοί όγκοι 0.14/100000
- Δημιουργία κύστης εντός του οστού
- Μονόχωρος ή πολύχωρος
- Μεμβράνη που παράγει υγρό, που δεν παροχετεύεται, αυξάνοντας σταδιακά την πίεση

ΜΟΝΗΡΕΙΣ ΑΝΕΥΡΥΣΜΑΤΙΚΕΣ ΚΥΣΤΕΙΣ



- Όγκοι της 1ης και 2ης δεκαετίας της ζωής
- Συνήθως στις μεταφύσεις των μακρών οστών
- Κυρίως την άνω μετάφυση του βραχιονίου και το μηριαίο (90%)
- Εντόπιση σε βραχέα οστά
- Σπονδυλική στήλη

Οστικές κύστεις

- Μονήρεις

- Κεντρική βλάβη
- Δεν επεκτείνεται η εγκάρσια διάμετρος
- Λέπτυνση του φλοιού
- Γεωγραφικά όρια (οριακή σκλήρυνση και λέπτυνση φλοιού)
- Βραδεία εξέλιξη

- Ανευρυσματικές

- Έκκεντρος βλάβη ?
- Επέκταση της εγκάρσιας διαμέτρου φυσαλιδώδη
- Εξαφάνιση του φλοιού
- Ταχεία εξέλιξη

Οστικές κύστεις

- Μονήρεις
- Κίτρινο ή ελαφρά αιμορραγικό περιεχόμενο
- Λίγα γιγαντοκύτταρα

- Ανευρυσματικές
- Αιμορραγικό περιεχόμενο
- Αφθονία γιγαντοκυττάρων

Πρωτοπαθής ανευρυσματική κύστη

ΠΩΣ ΕΜΦΑΝΙΖΟΝΤΑΙ

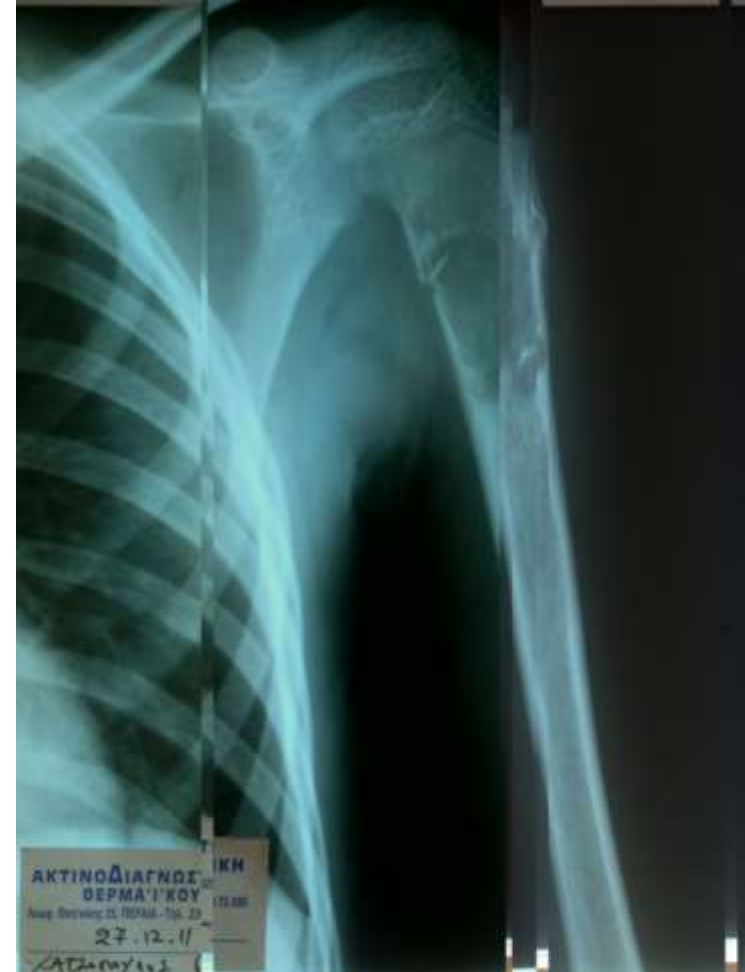
- Διαγιγνώσκονται συνήθως ως **παθολογικά κατάγματα** είτε μετά από διερεύνηση για ήπια αμβλυχρά συμπτώματα.
- Τυχαίο ακτινολογικό εύρημα

Κύστεις βραχιονίου

- Περιγράφουμε μια σειρά από 9 παιδιά με ανευρυσματική κύστη στο βραχιόνιο και 2 με μονήρη κύστη.
- Η ηλικία τους κυμαινόταν από 4 έως 13 ετών. Πρόκειται για 7 κορίτσια και 4 αγόρια.
- Σε όλες τις περιπτώσεις η εντόπιση αφορούσε την εγγύς μετάφυση του βραχιονίου

Διάγνωση

- Παθολογικό κάταγμα 7 ασθενείς
- Διερεύνηση ενοχλήσεων ώμου 2 ασθενείς



Διερεύνηση

- Ακτινογραφίες
- Μαγνητική τομογραφία
- Αξονική τομογραφία

- ΜΟΝΗΡΗΣ εντόπιση

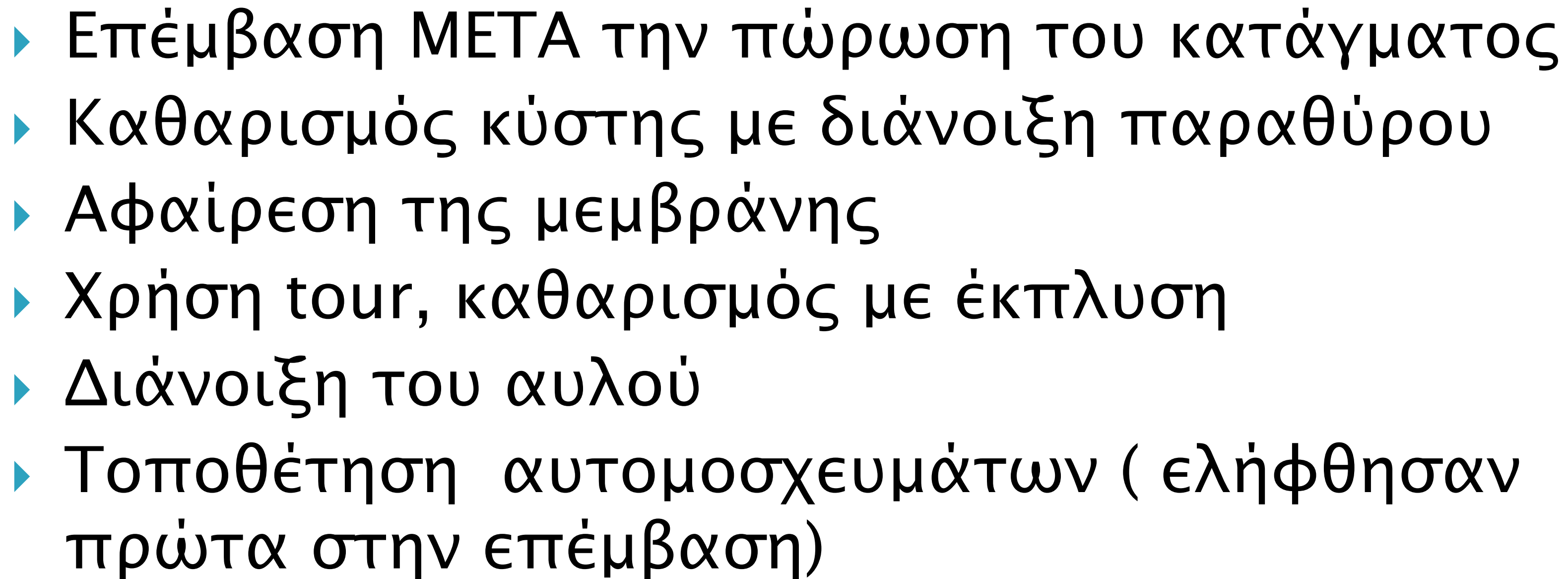
Ταξινόμηση

- Κριτήρια Capanna
- Μέγεθος, θέση κύστης και ΕΠΑΦΗ με την επιφυσιακή πλάκα

Skeletal Radiology

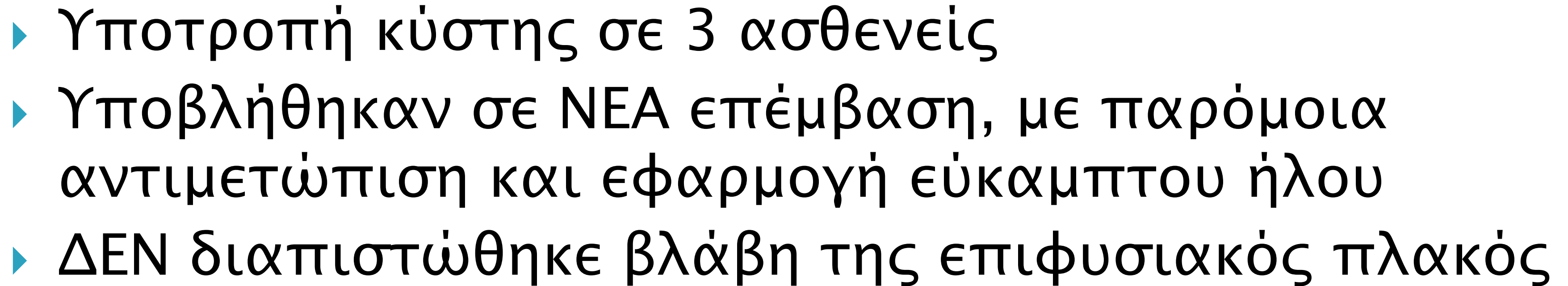
Juxtaepiphyseal Aneurysmal Bone Cyst

Αντιμετώπιση



- Επέμβαση ΜΕΤΑ την πώρωση του κατάγματος
- Καθαρισμός κύστης με διάνοιξη παραθύρου
- Αφαίρεση της μεμβράνης
- Χρήση tour, καθαρισμός με έκπλυση
- Διάνοιξη του αυλού
- Τοποθέτηση αυτομοσχευμάτων (ελήφθησαν πρώτα στην επέμβαση)

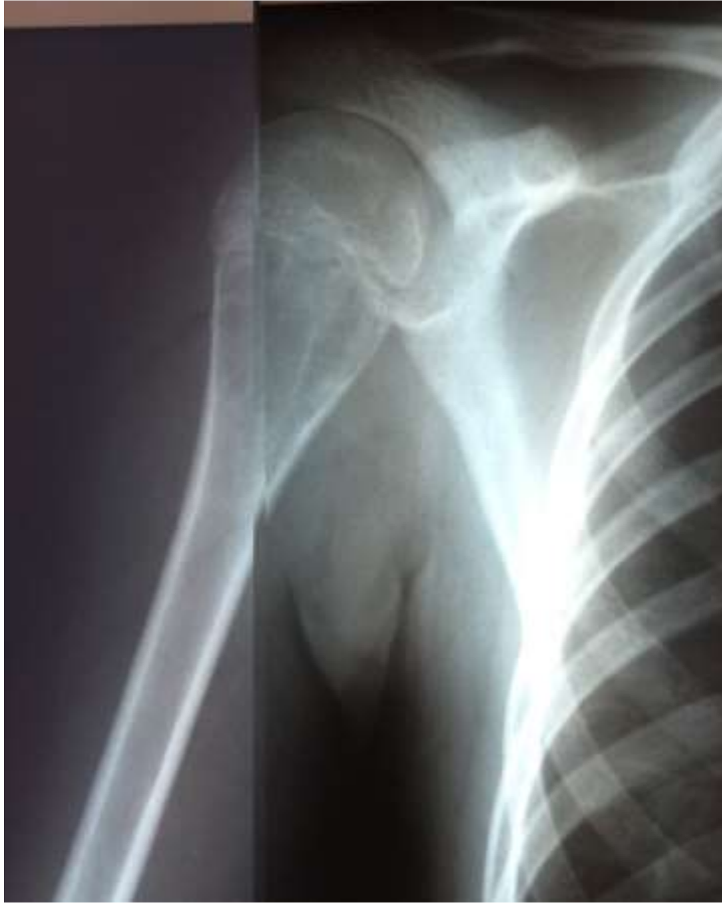
Αποτελέσματα

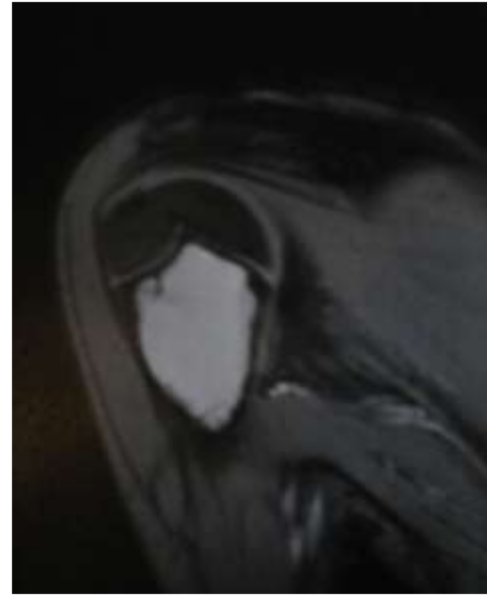


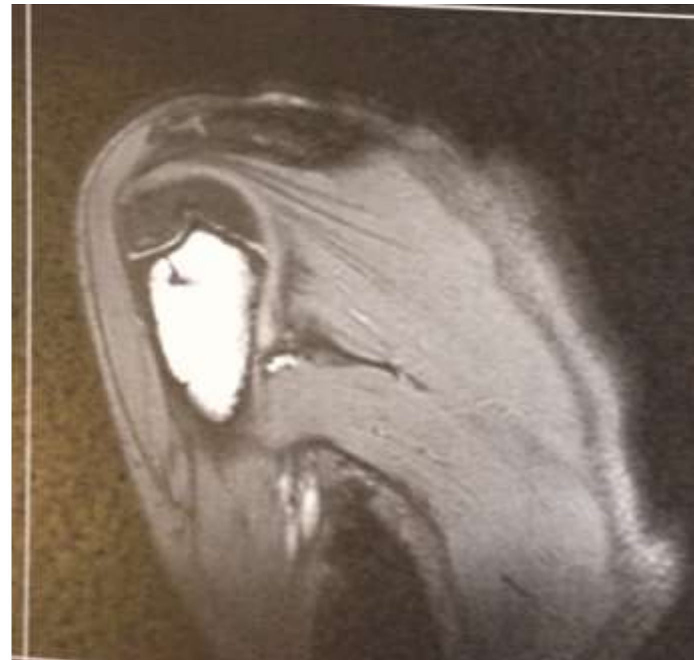
Υποτροπή κύστης

- 2 ασθενείς ηλικίας <6 ετών
- 1 ασθενής με επαφή της κύστης με την επιφυσιακή πλάκα

Doulger sof







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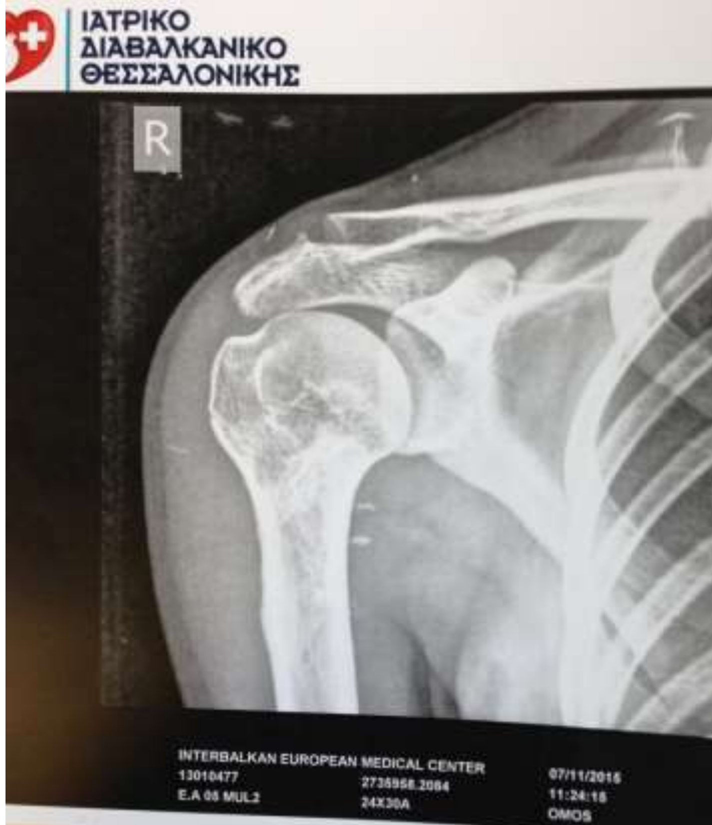

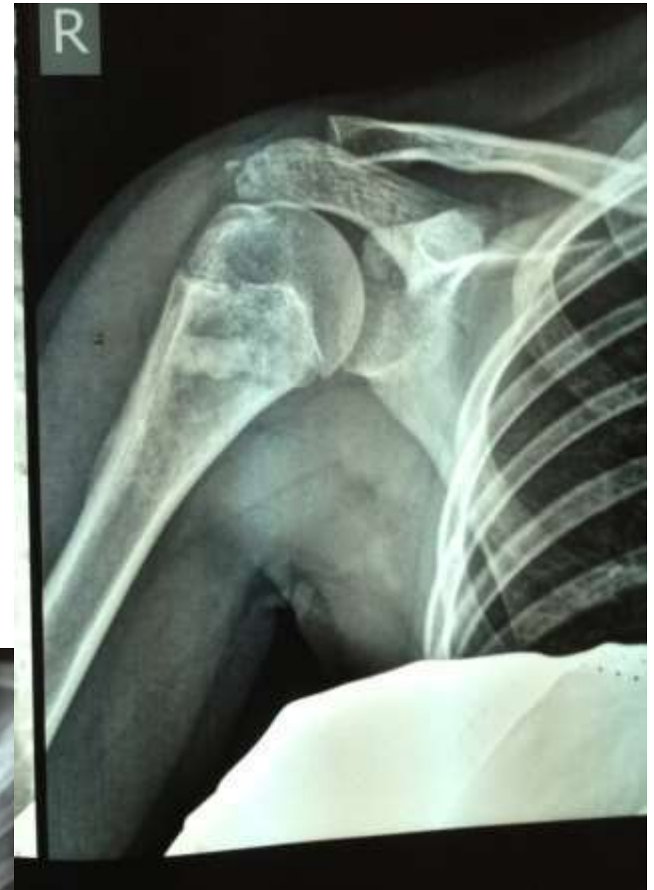

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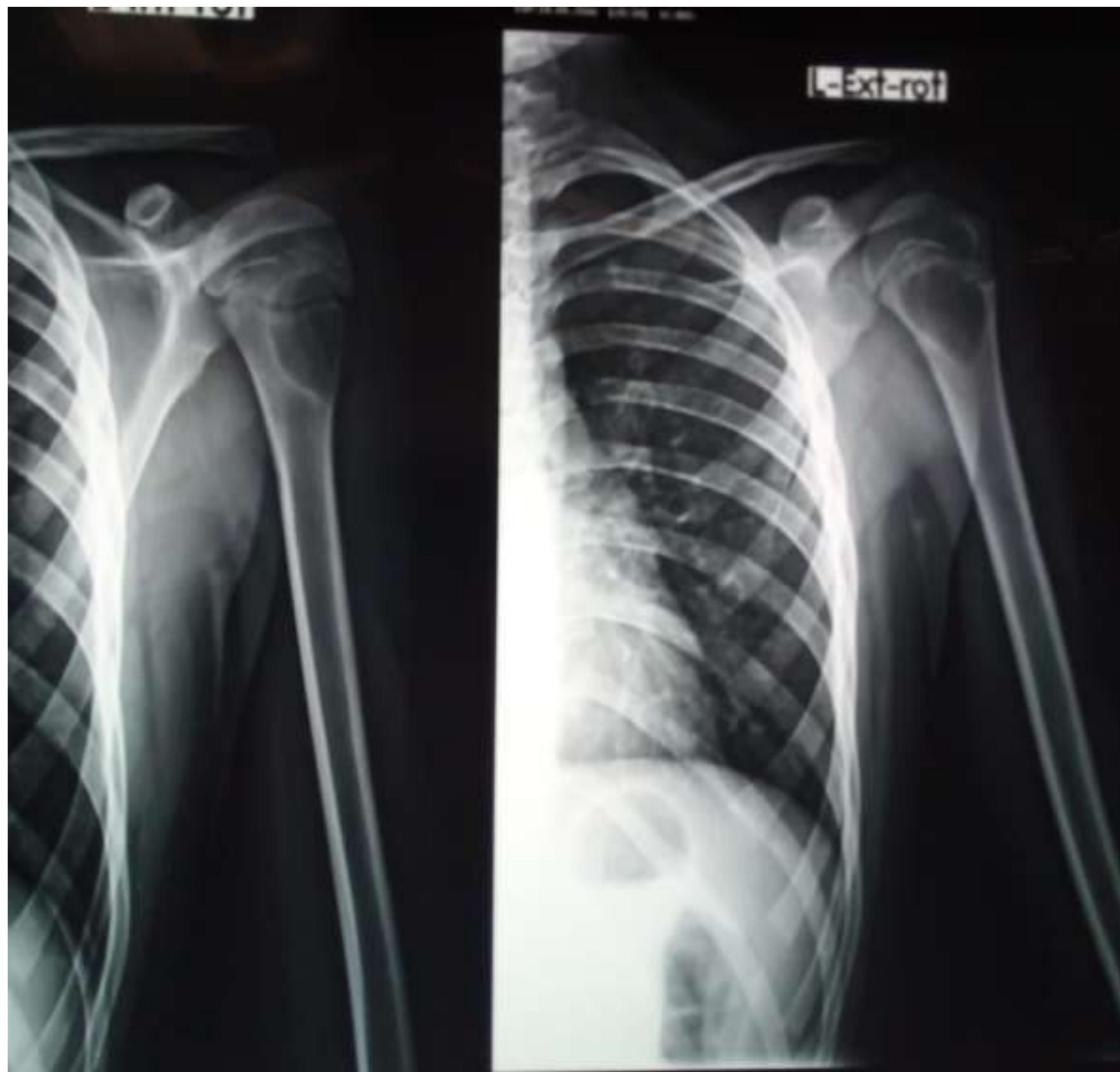

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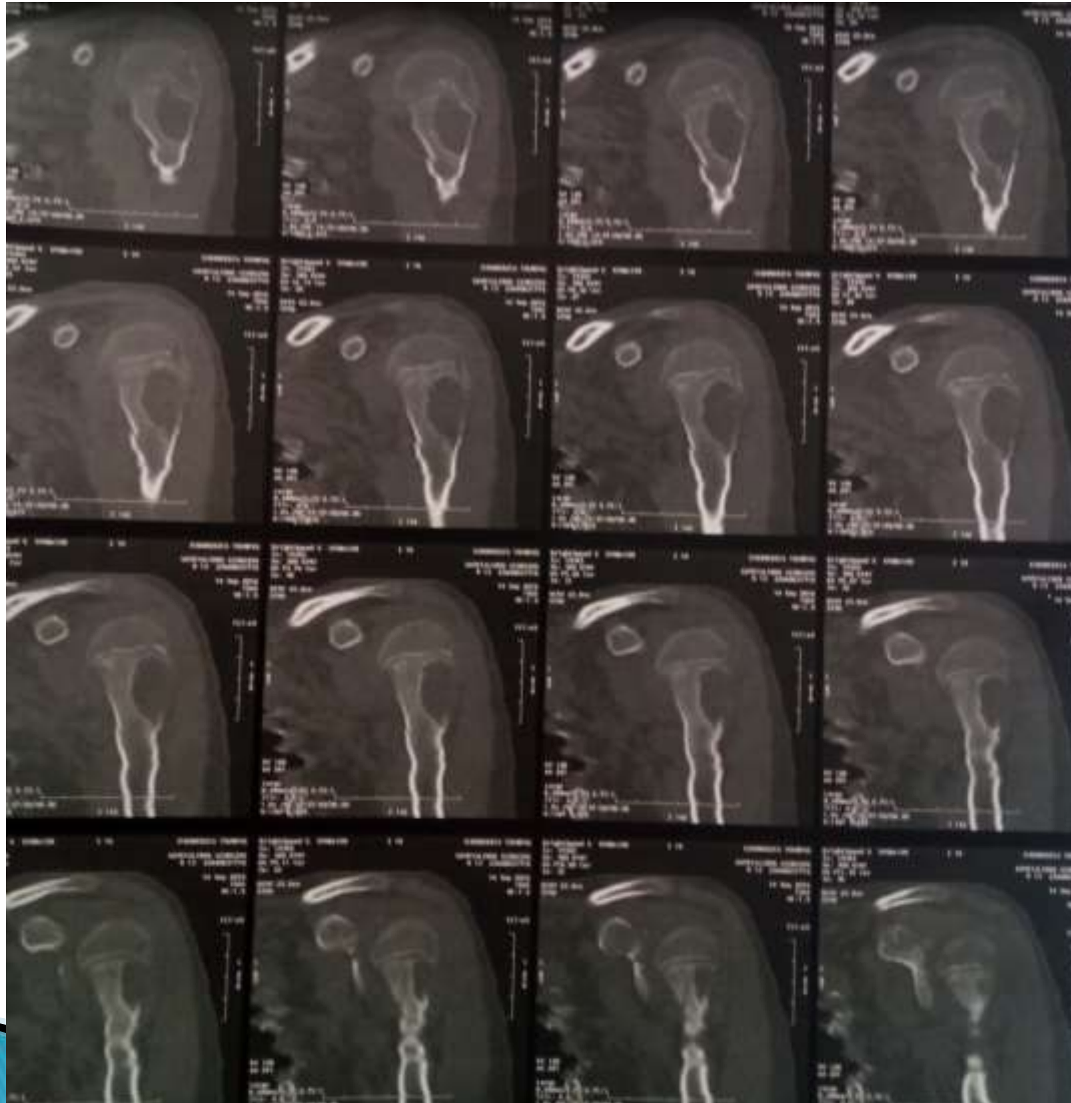

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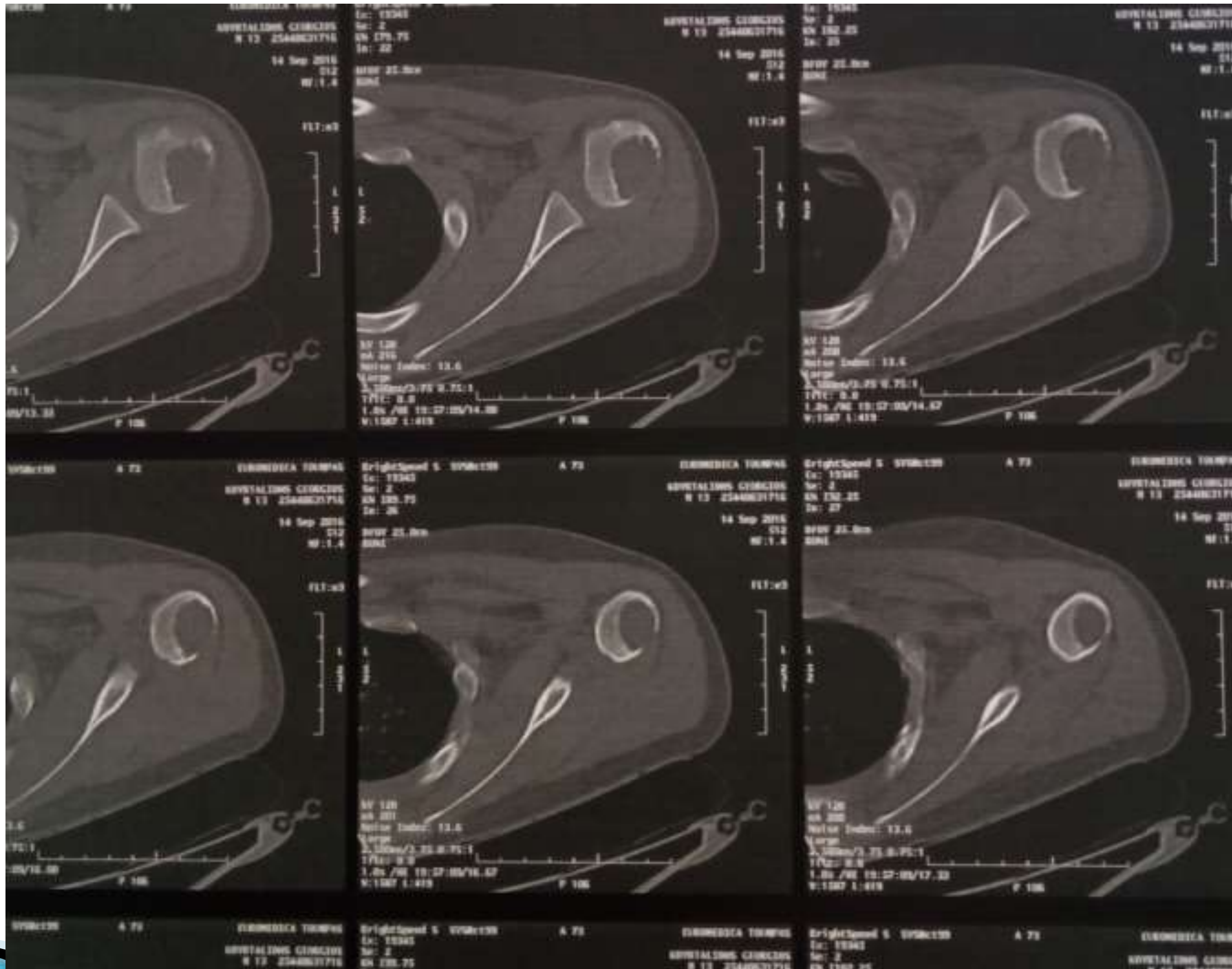

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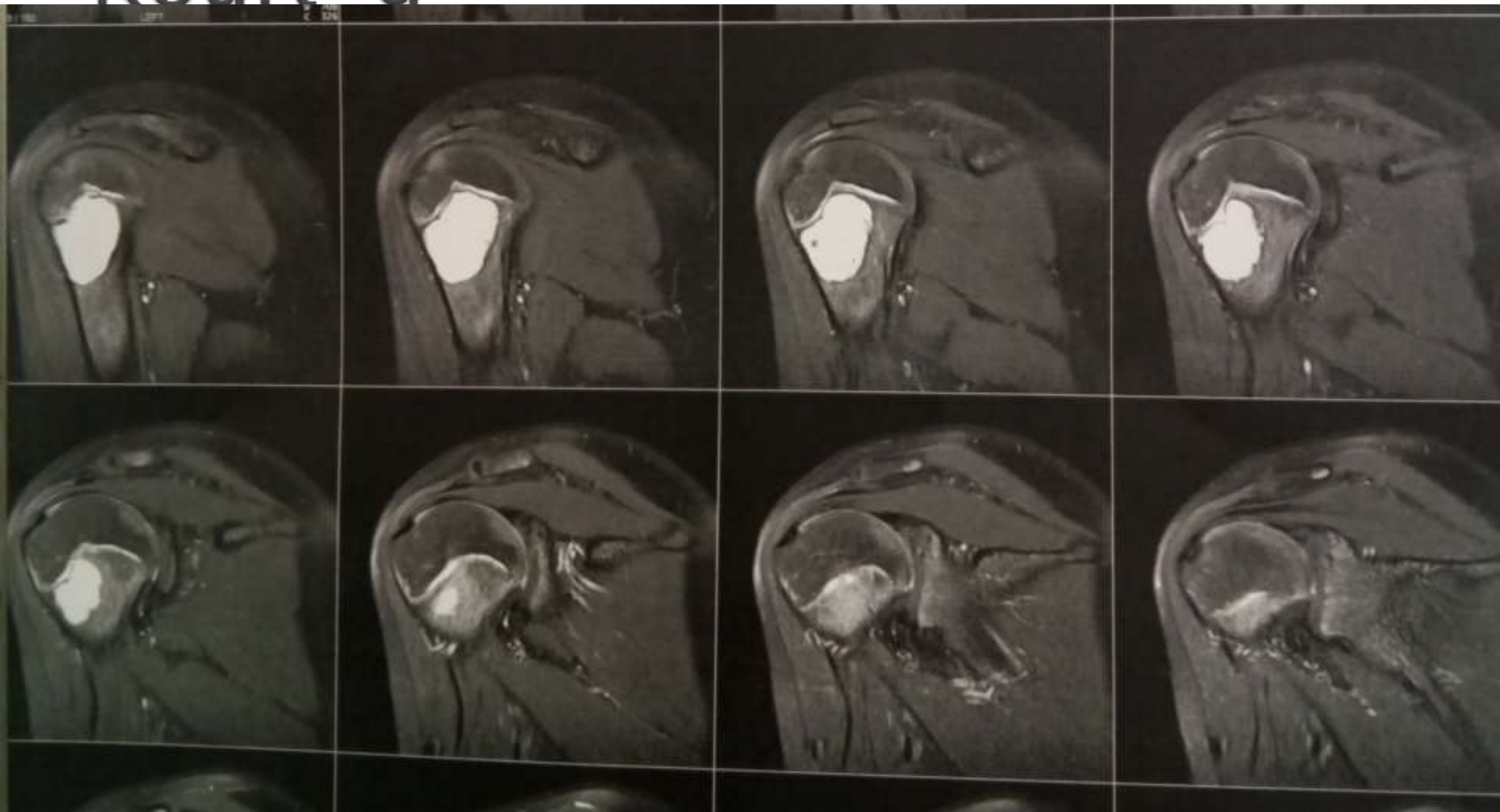

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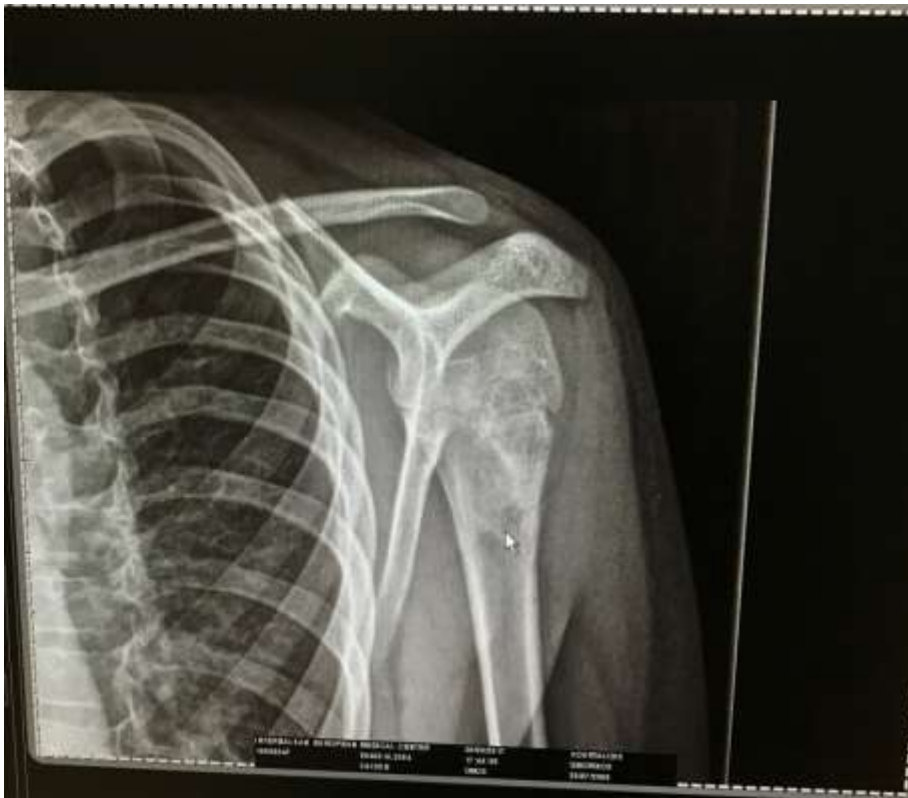

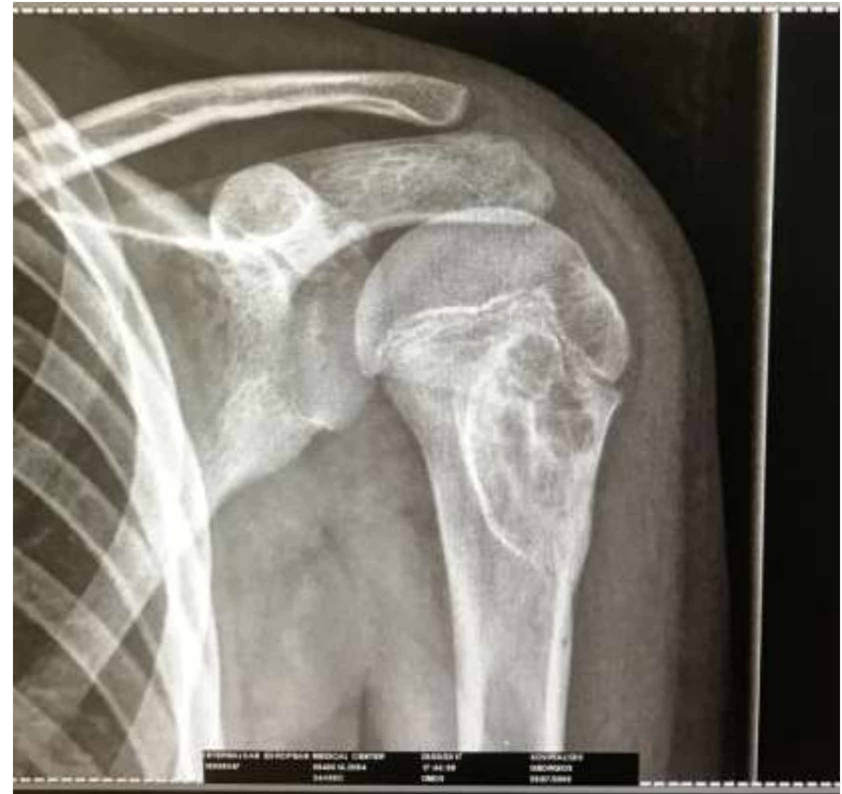

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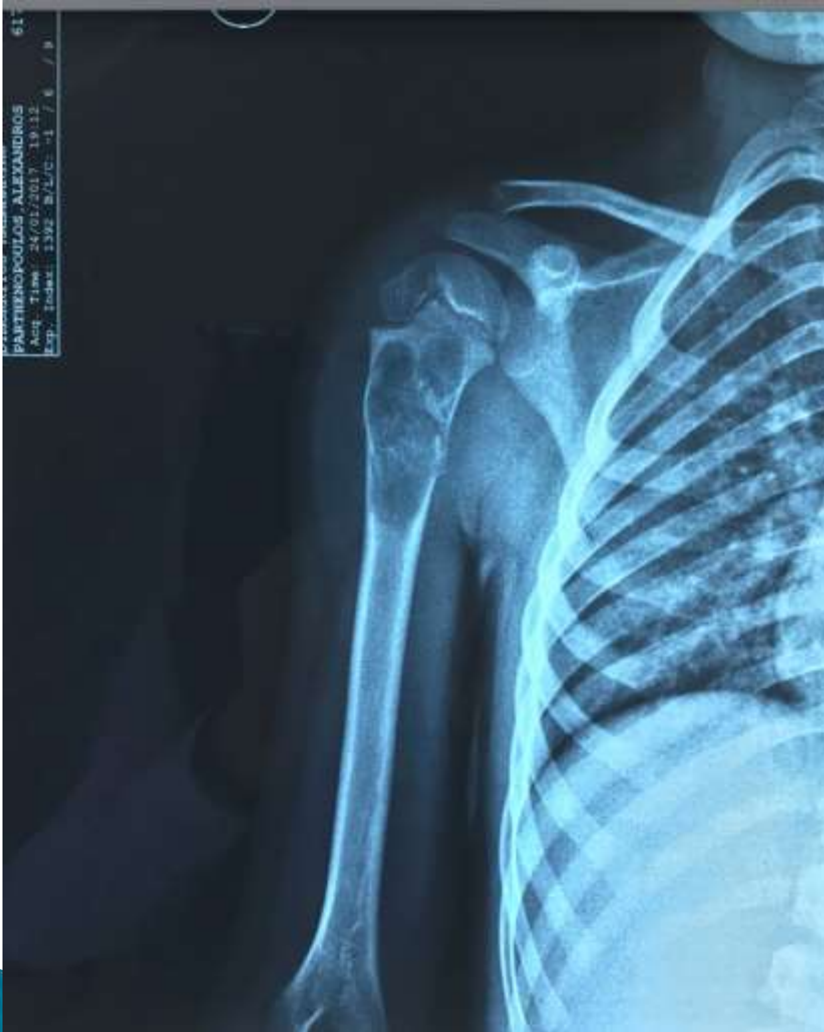

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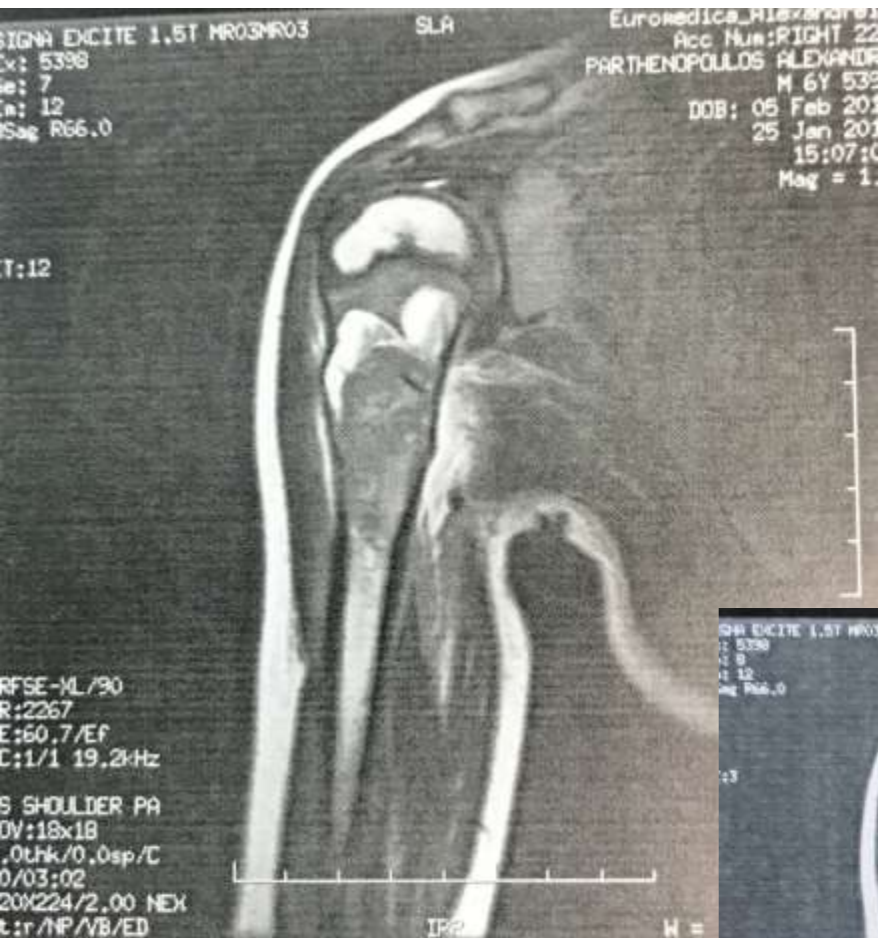
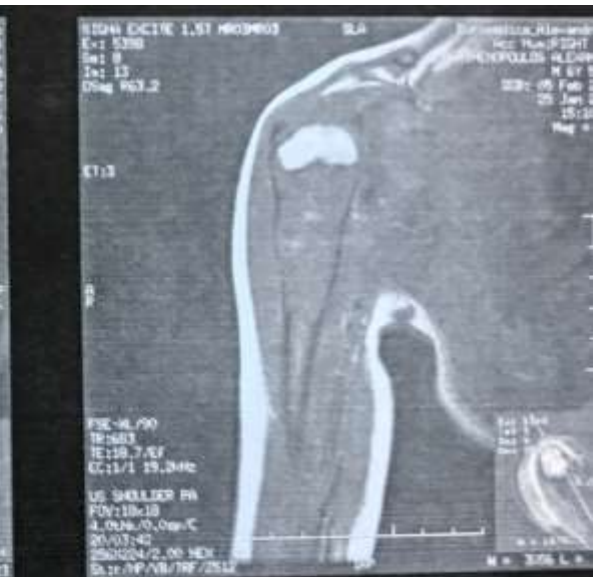
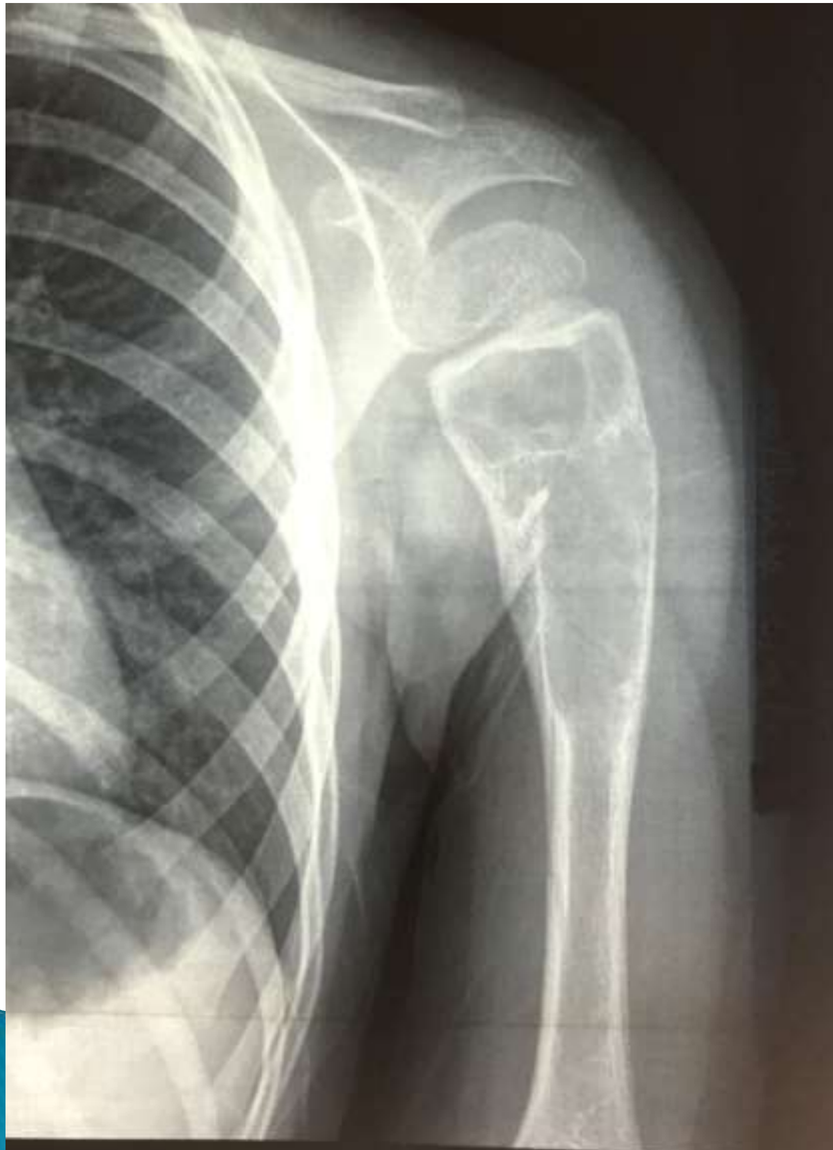
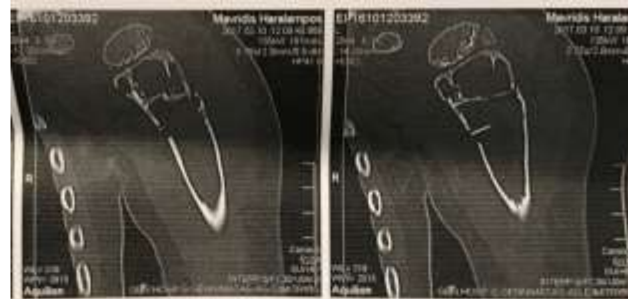
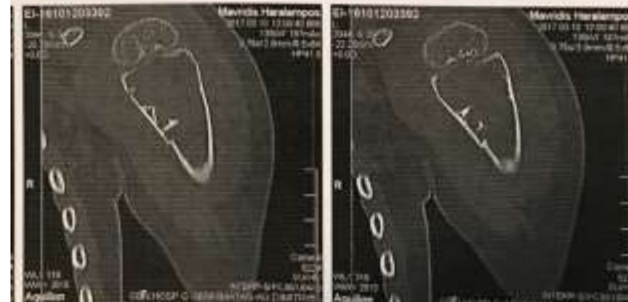


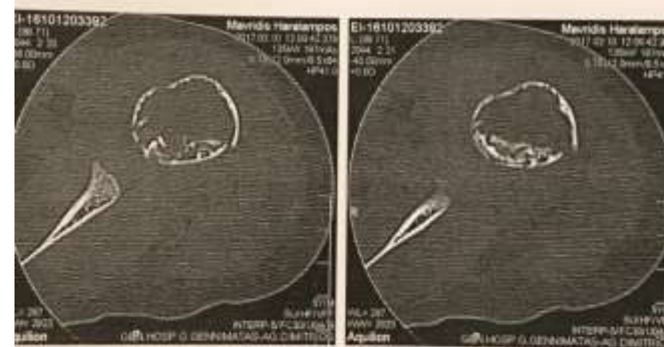


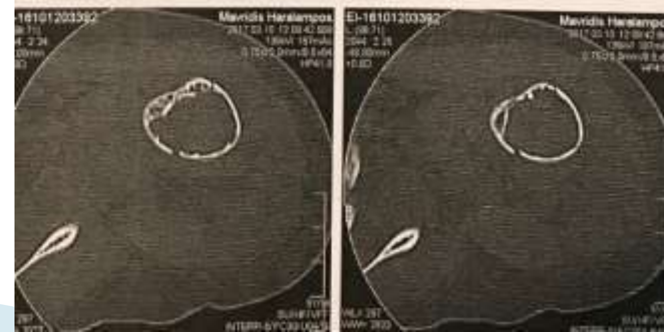
mavr











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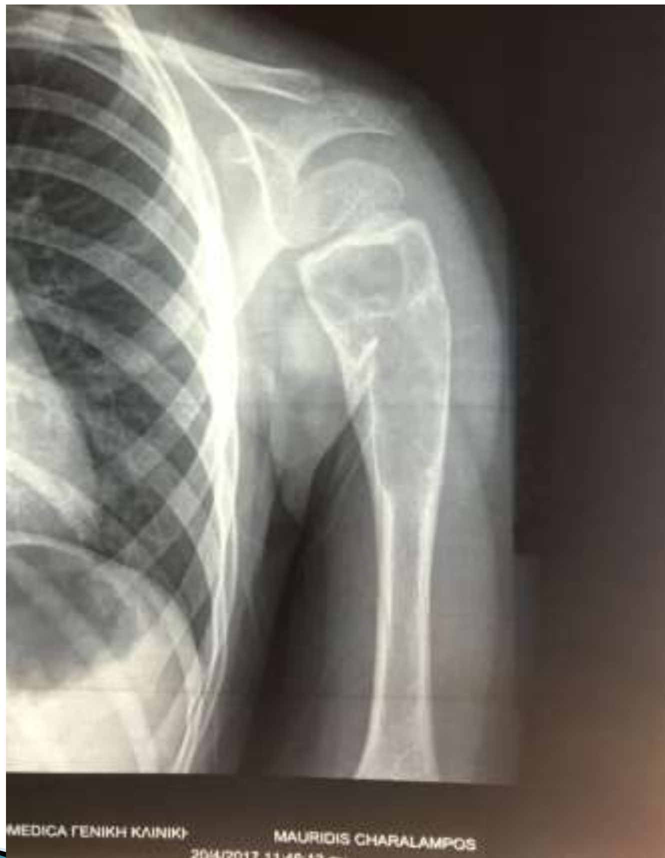

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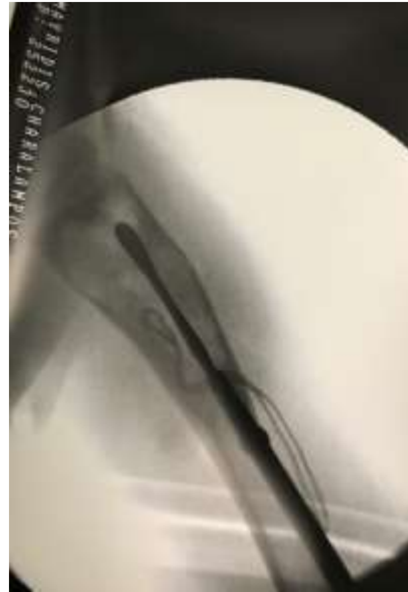
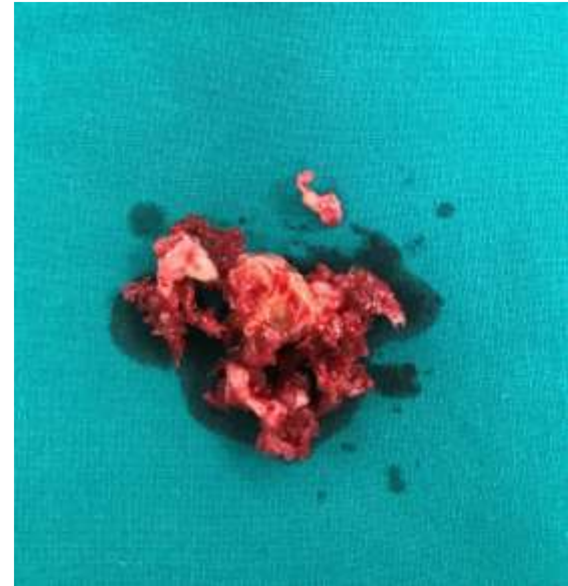
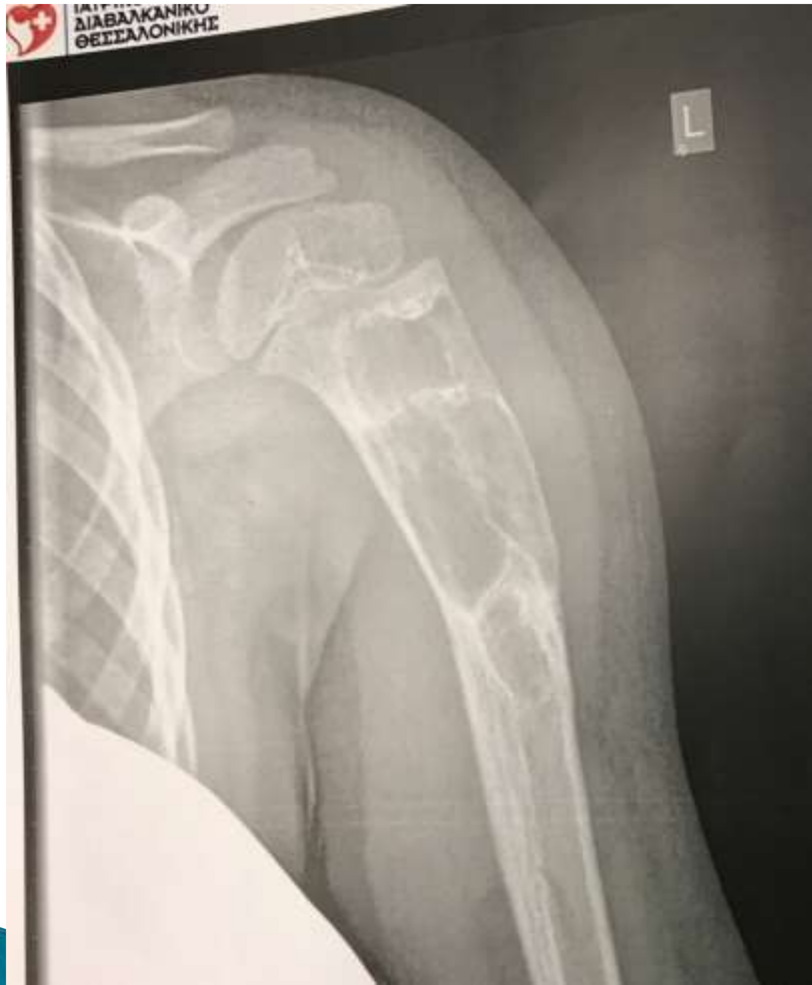
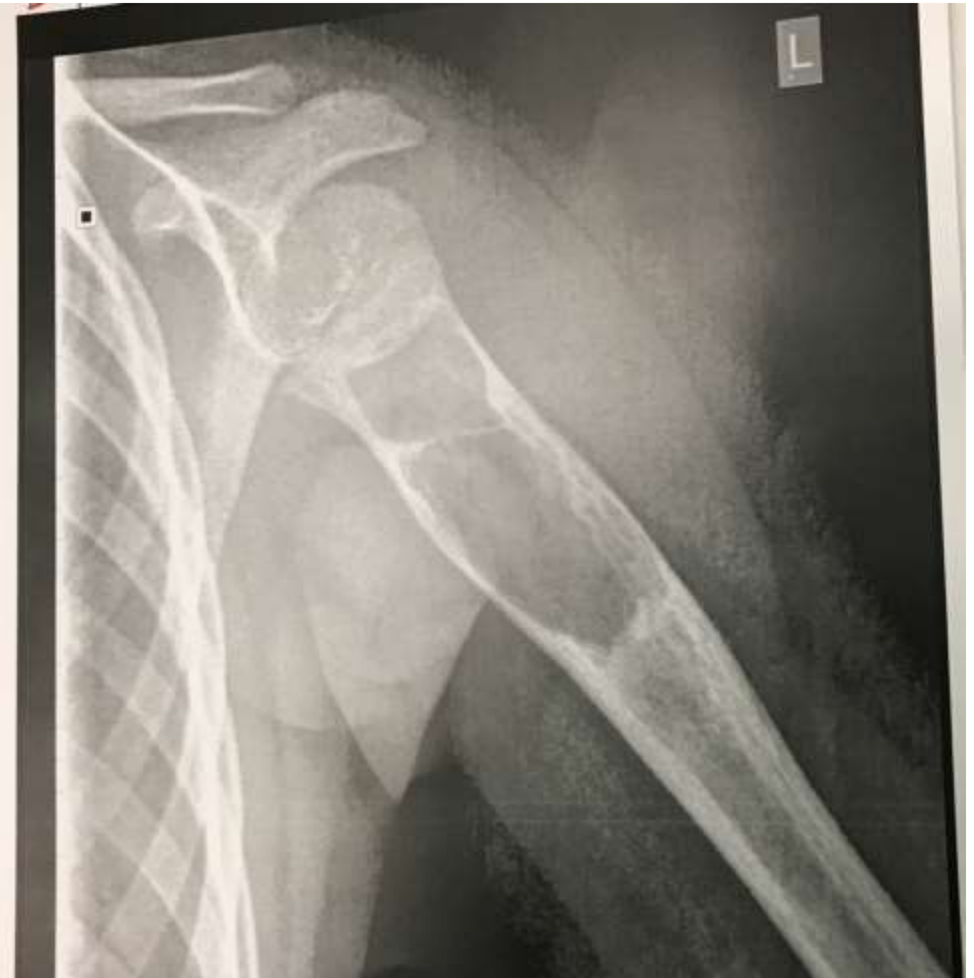


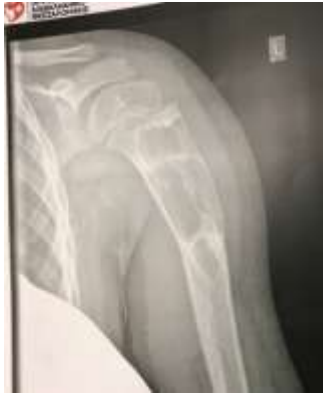


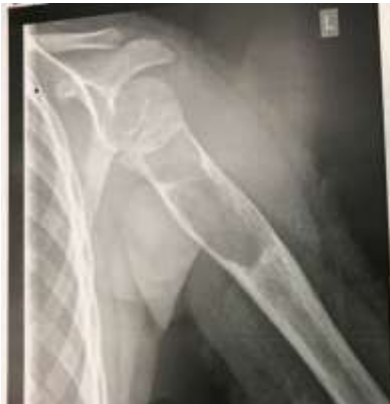
Mavr 6 months later



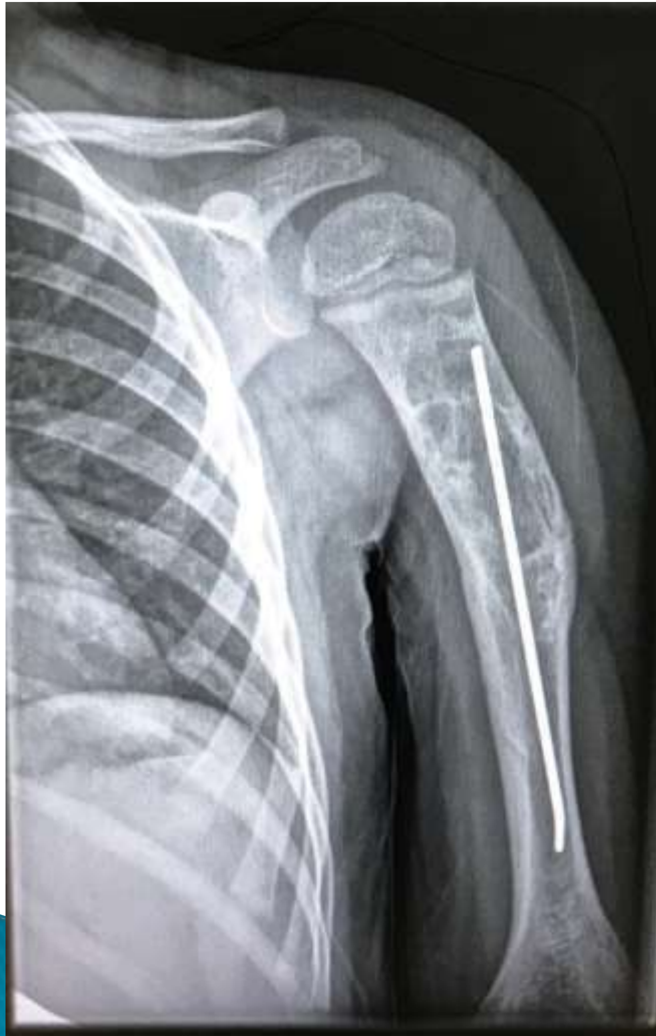


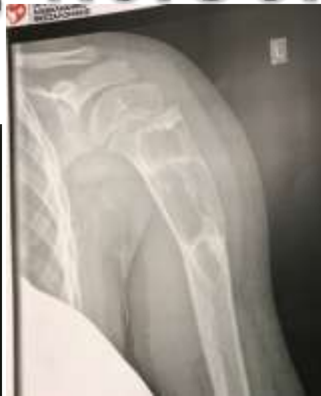
Mavr 6 months later ?

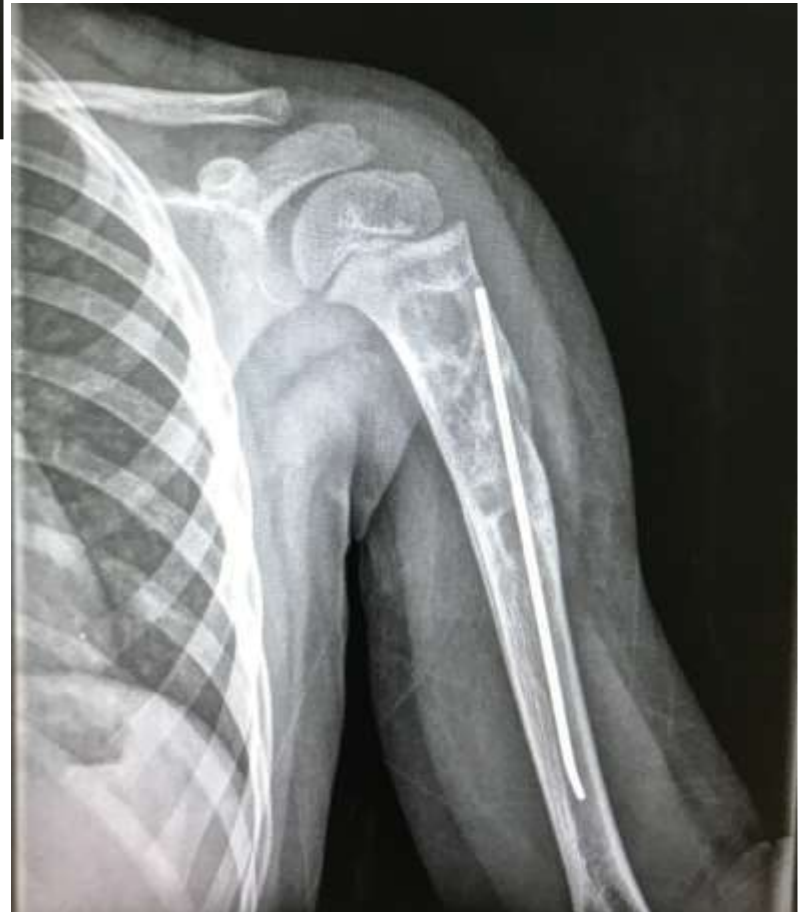




Mavr Νέος καθαρισμός

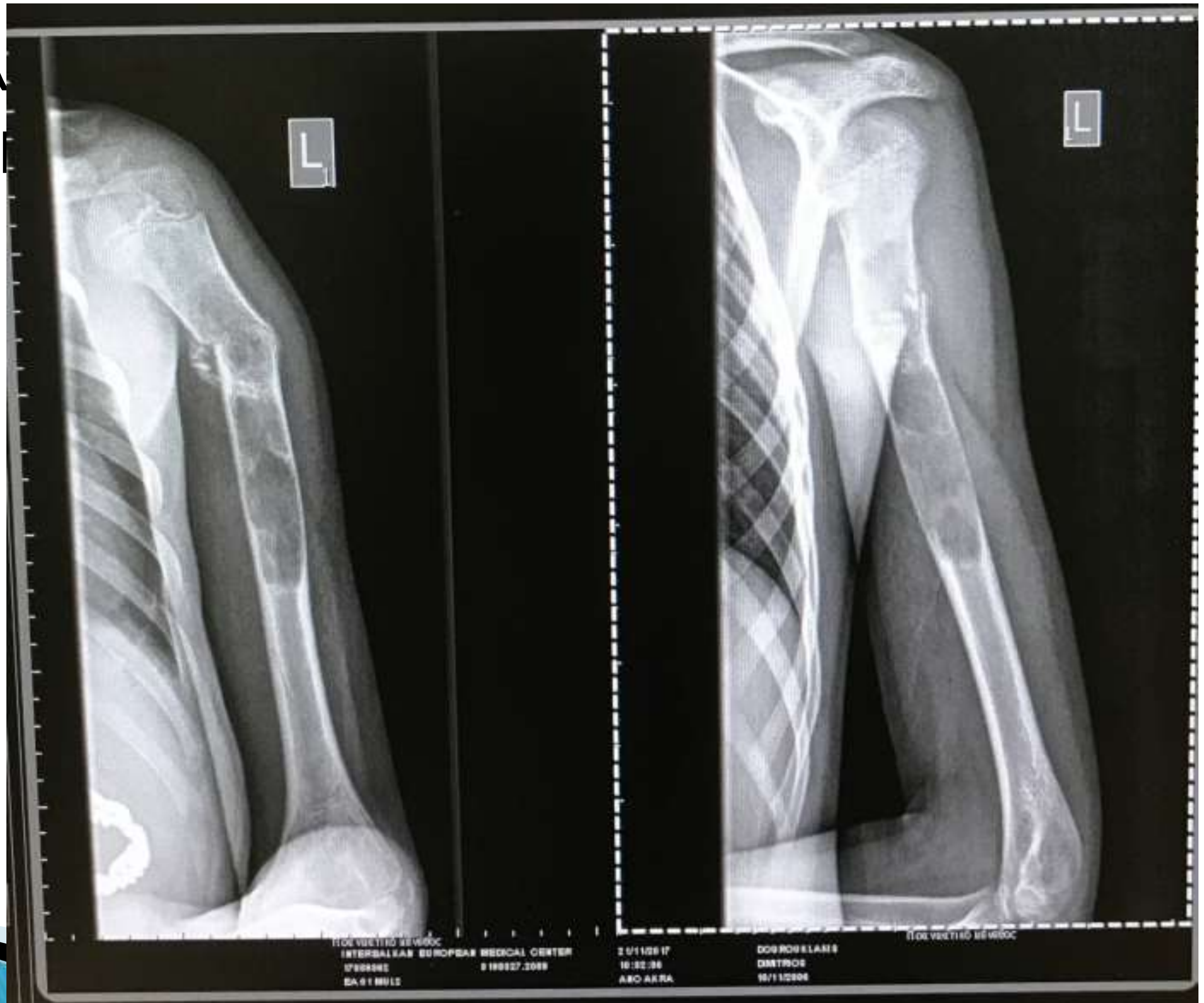




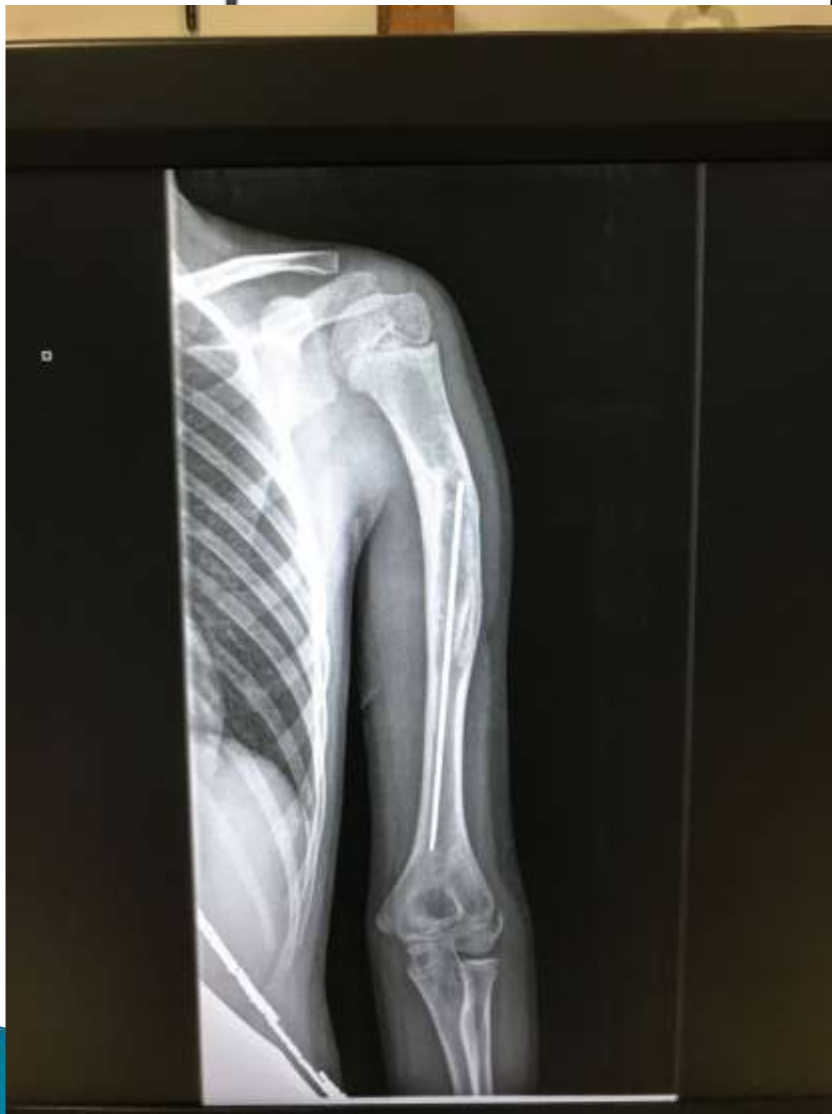


δουρο

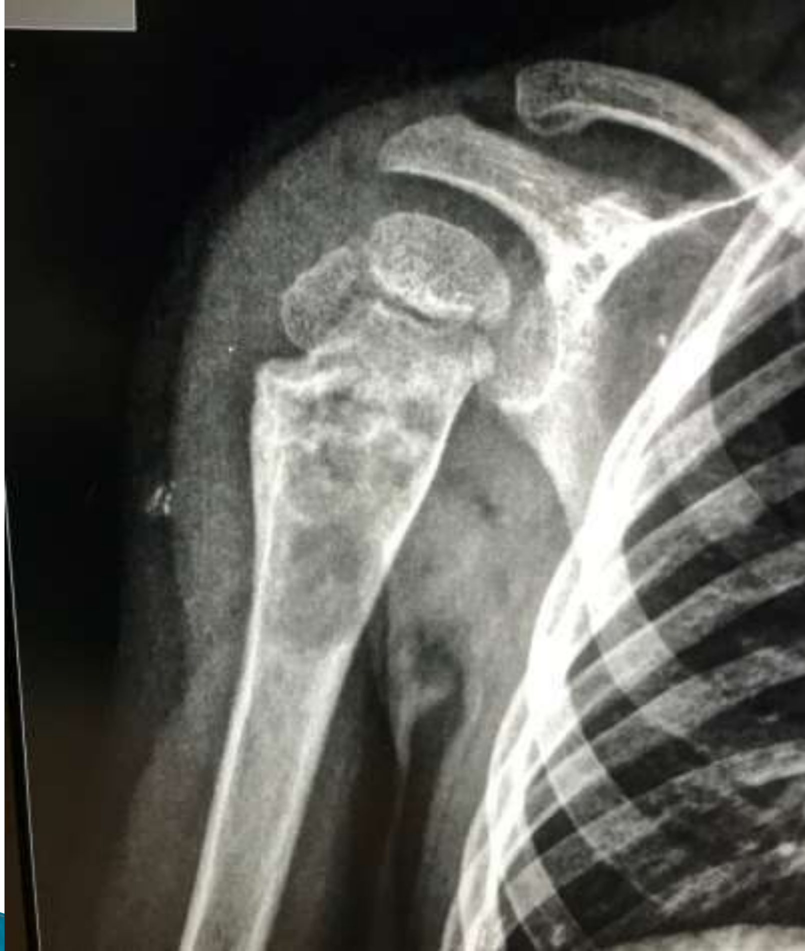
- Παθολ
  κάταγ

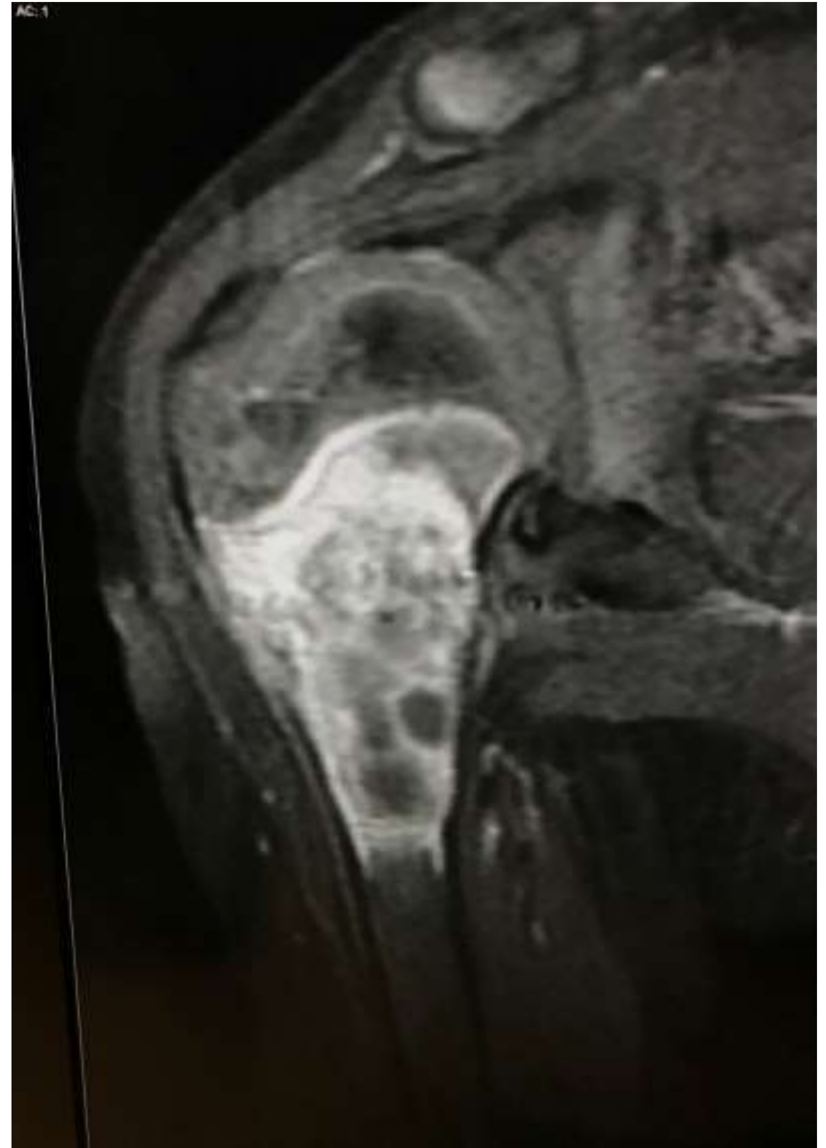


δουρο

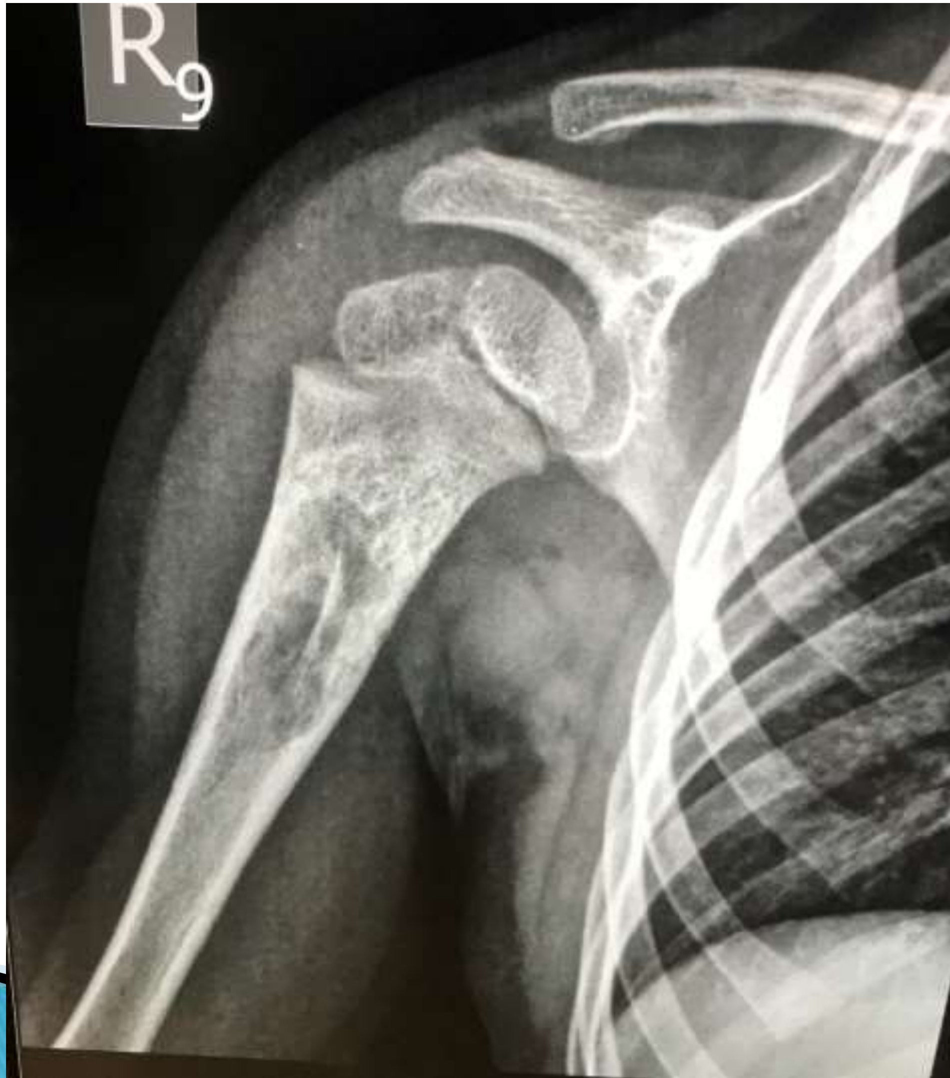


Δεληβαχ initial



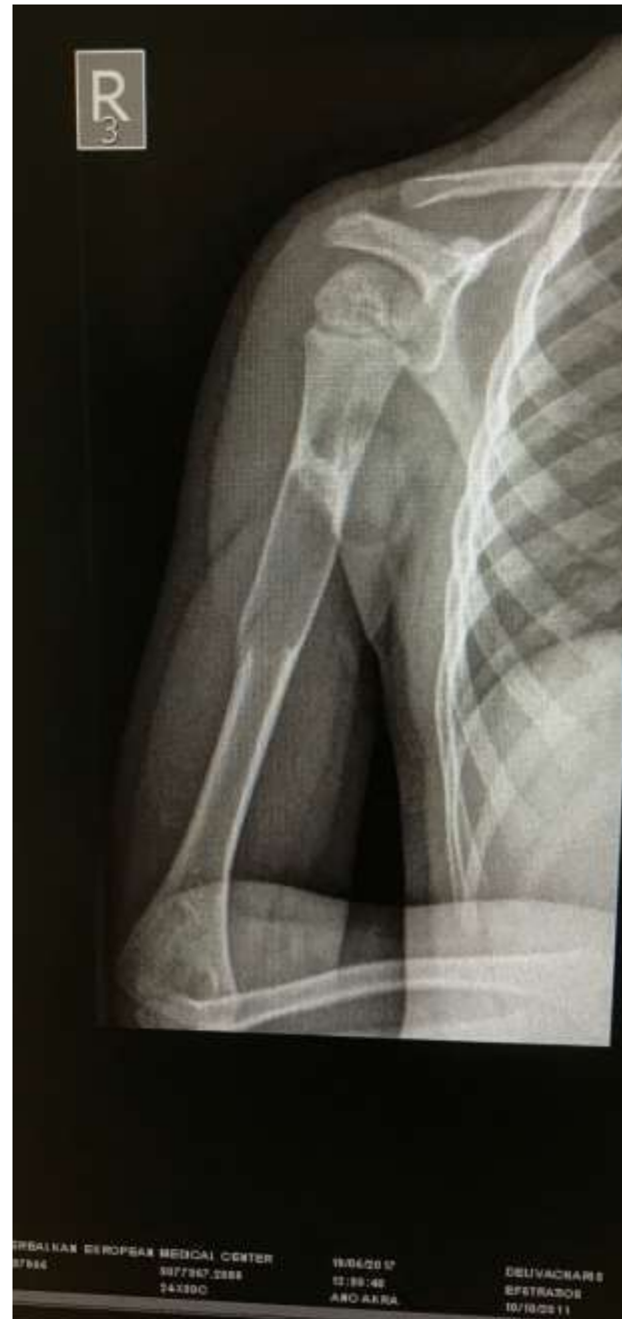


Δεληβαχ treatment



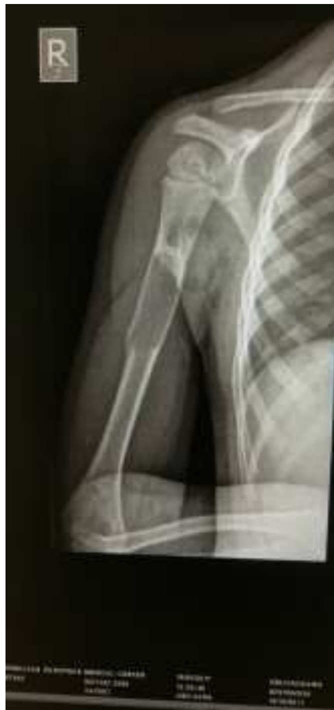
δεληβαχ

- Υποτροπή κύστης σε 1 χρόνο



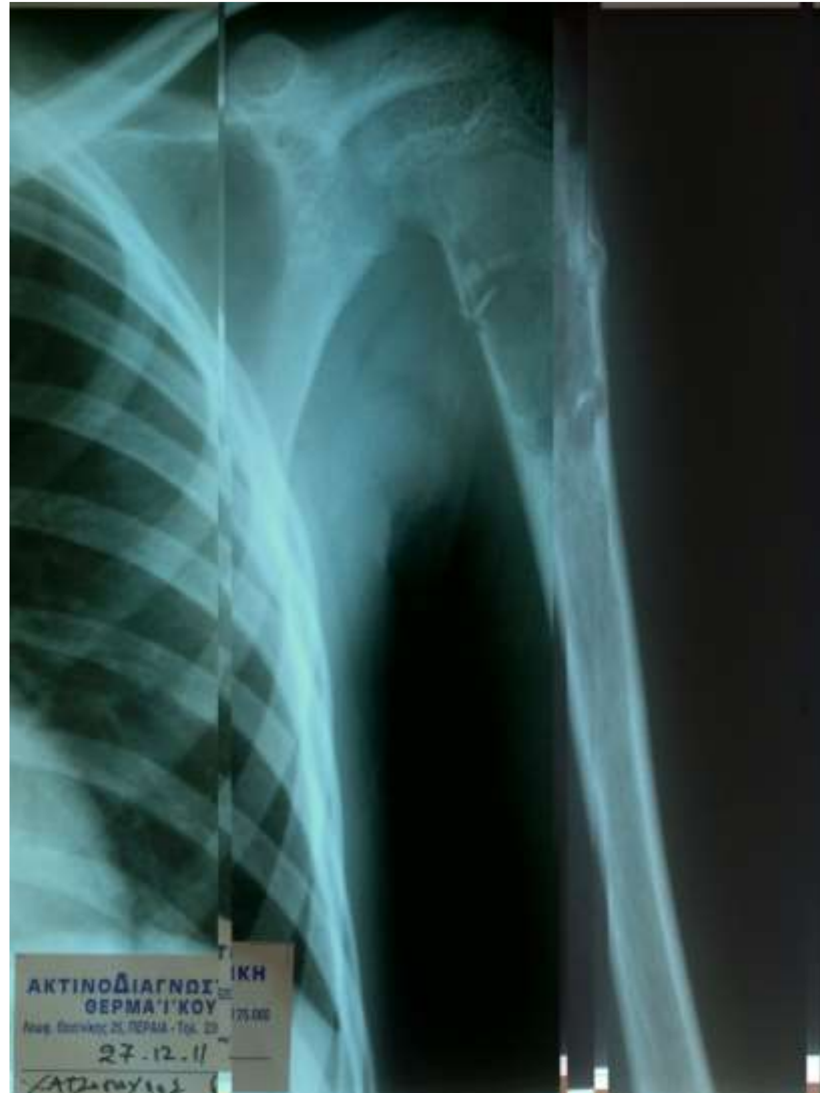
δεληβαχ

- Νεα επέμβαση



chatz

- Initial 2011



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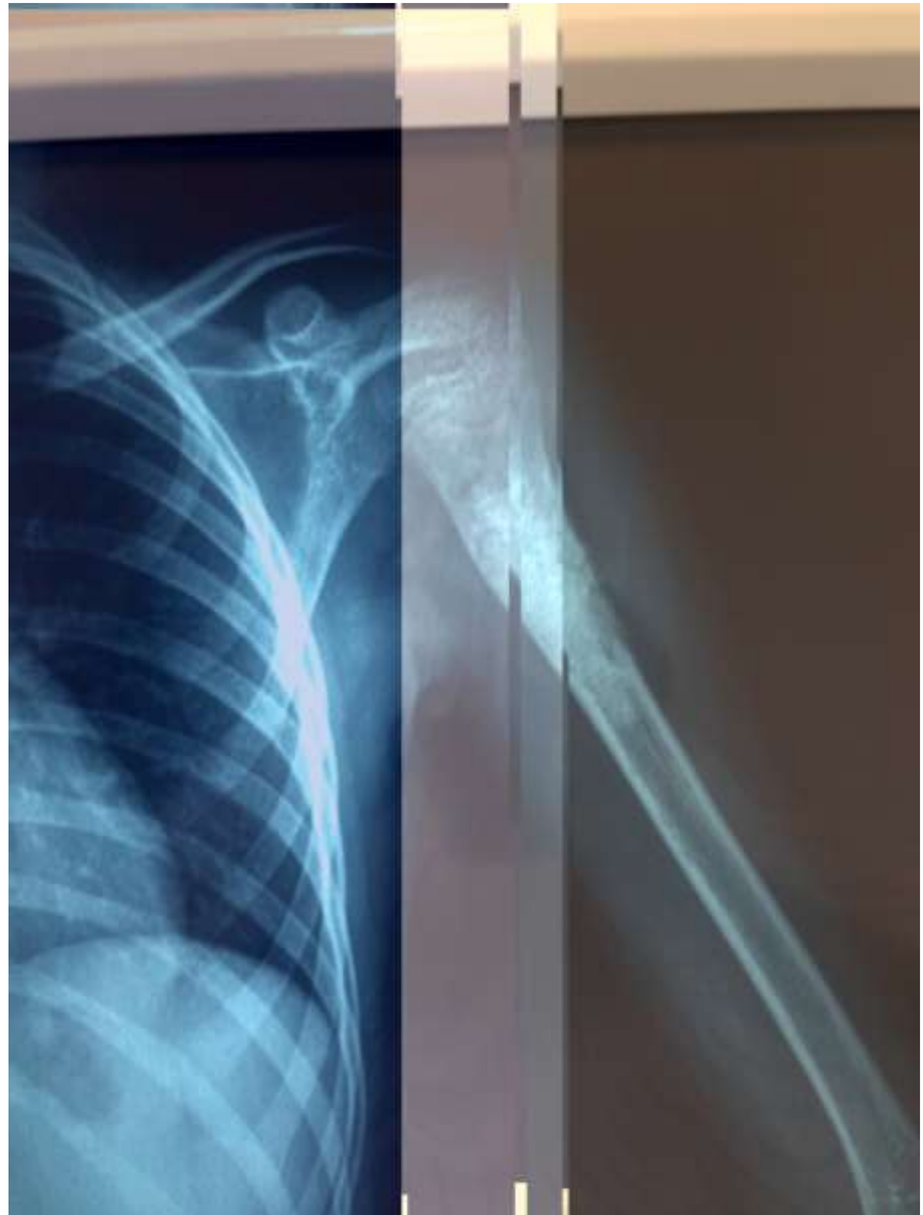
- Treatment
- Bone graft
- 2012



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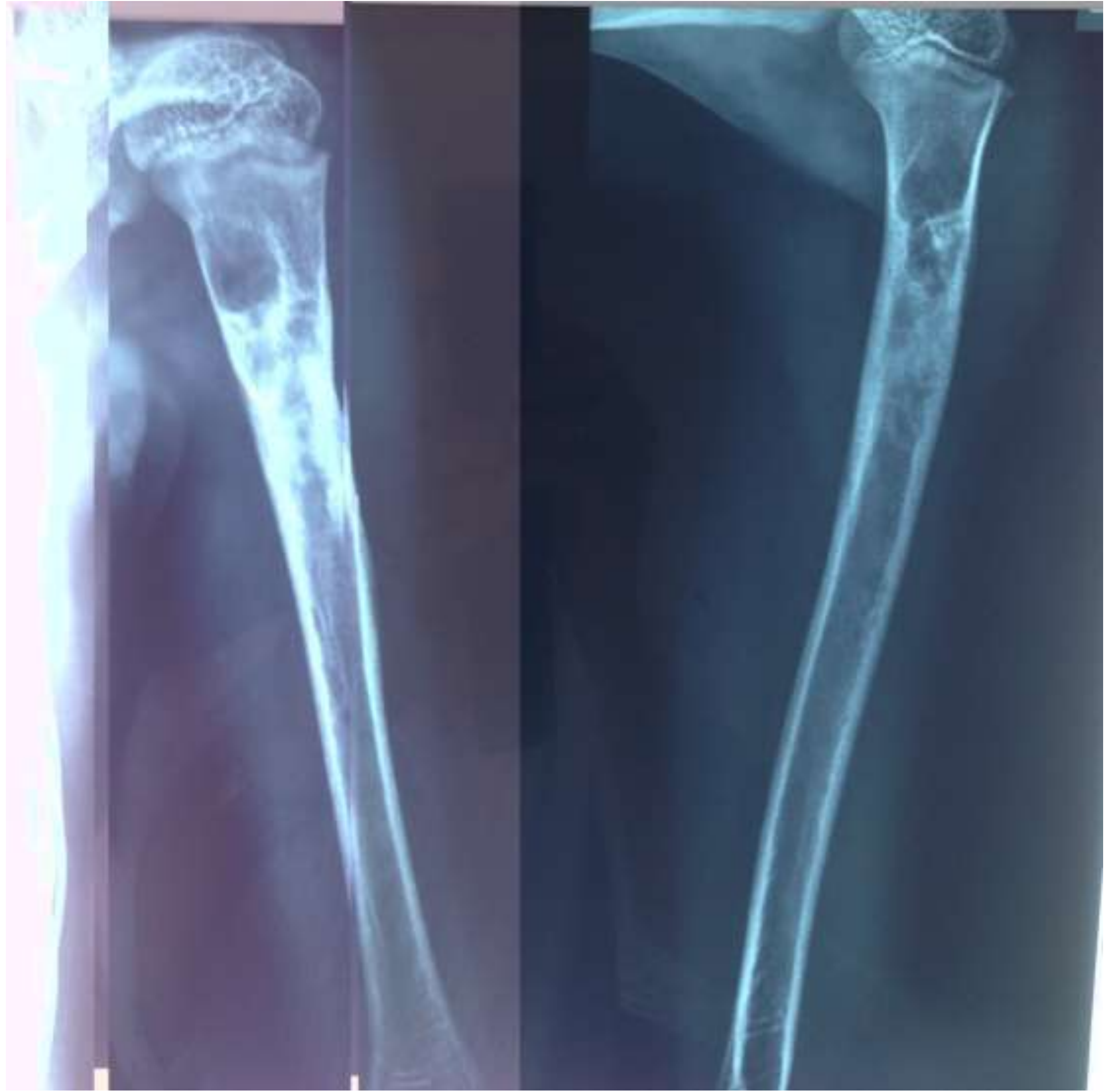
- 2013



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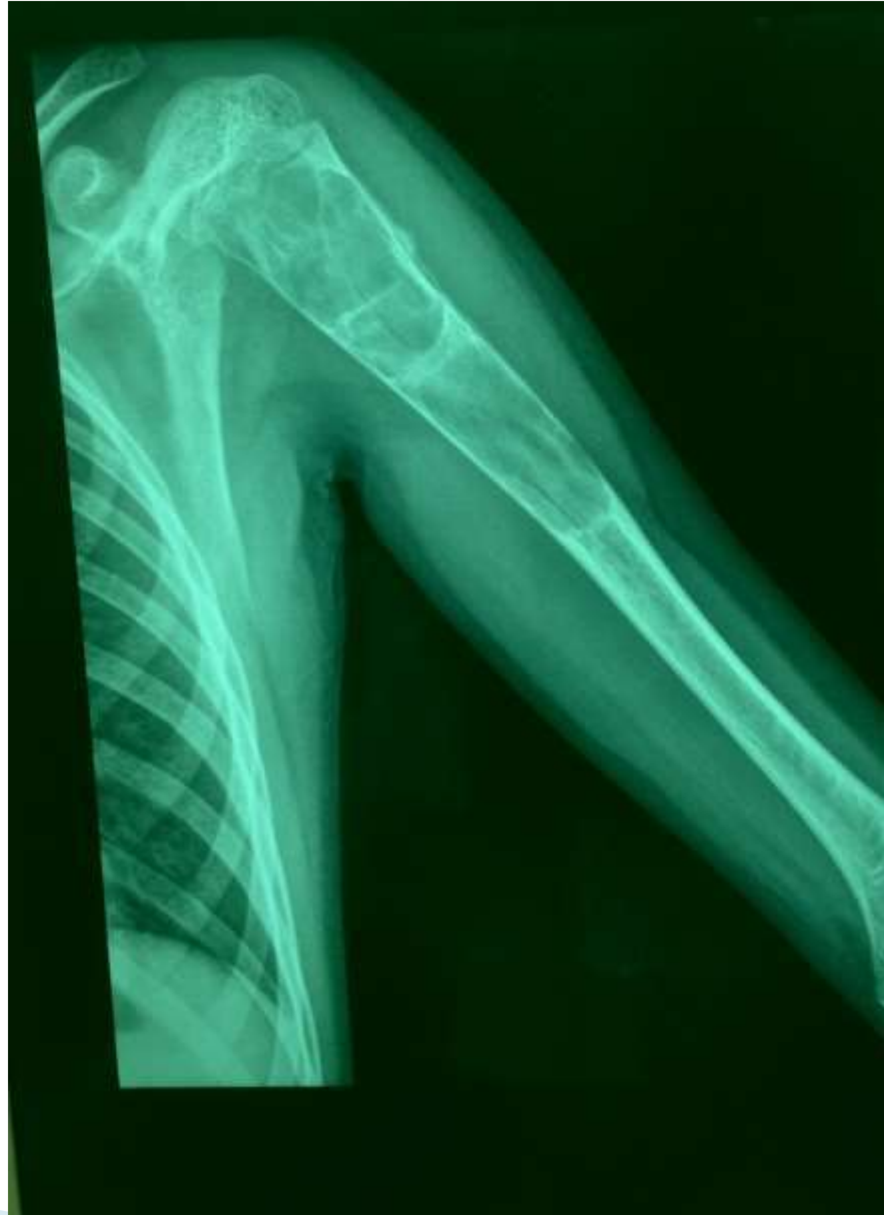
- 2015



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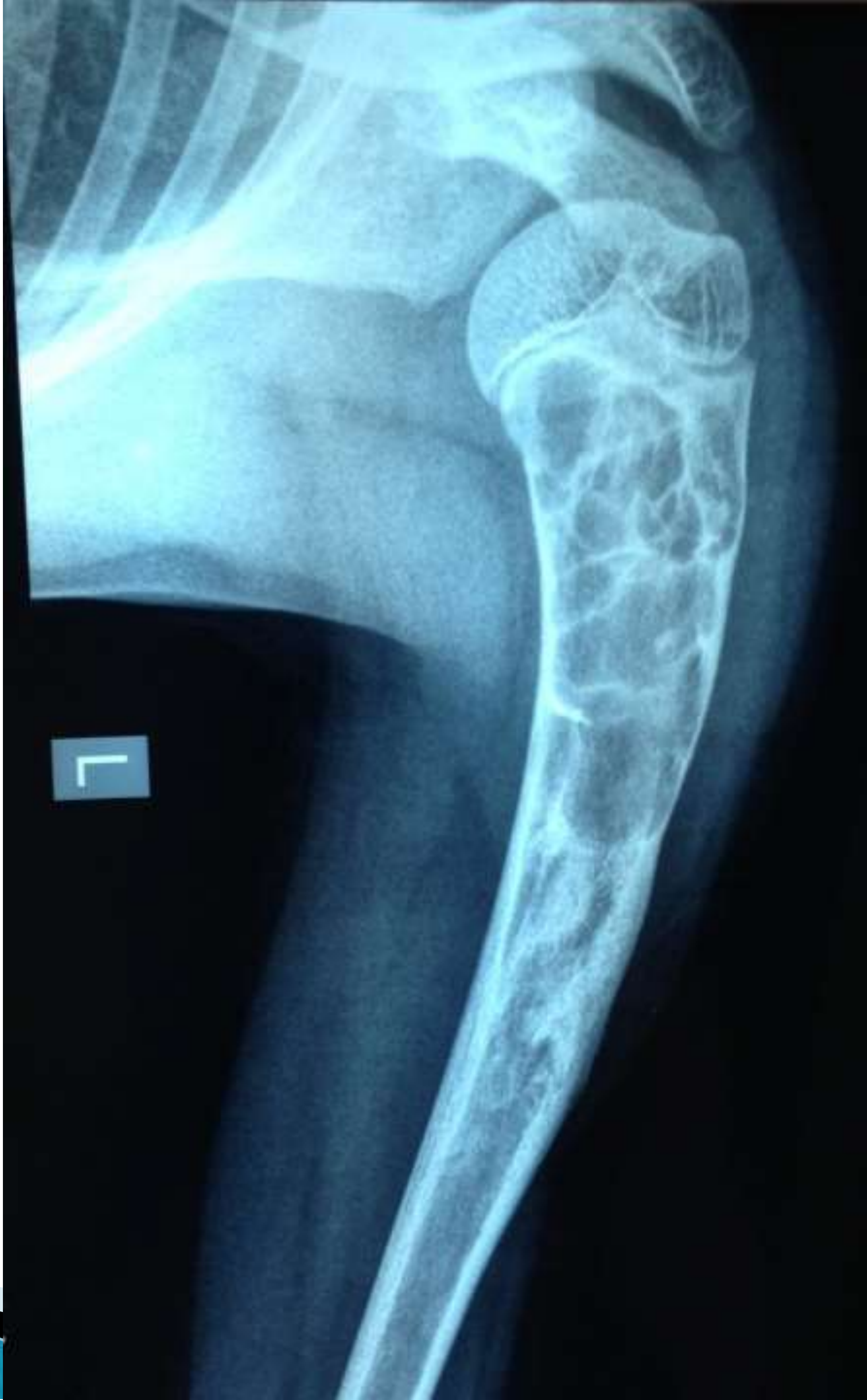
- 2016



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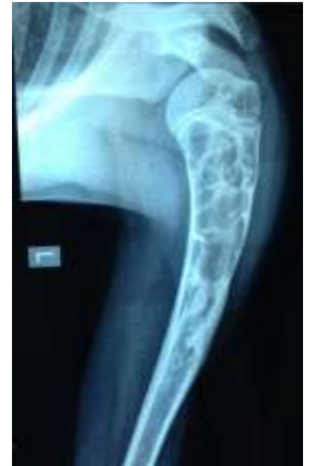
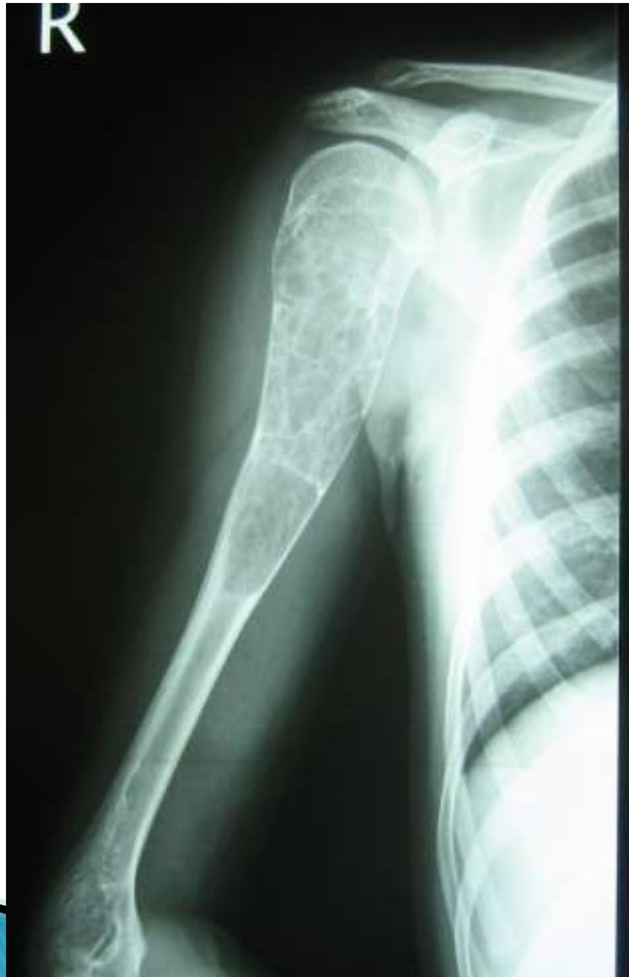
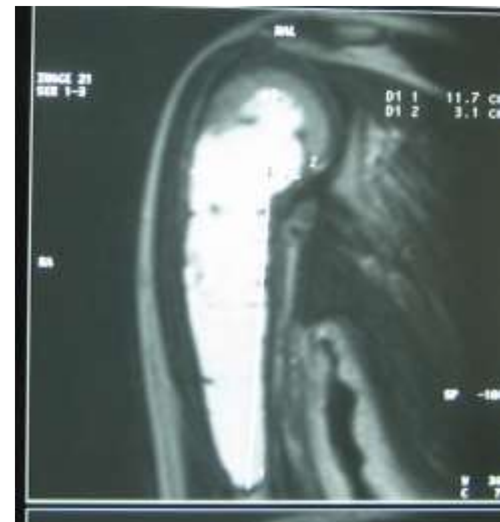
- 2016

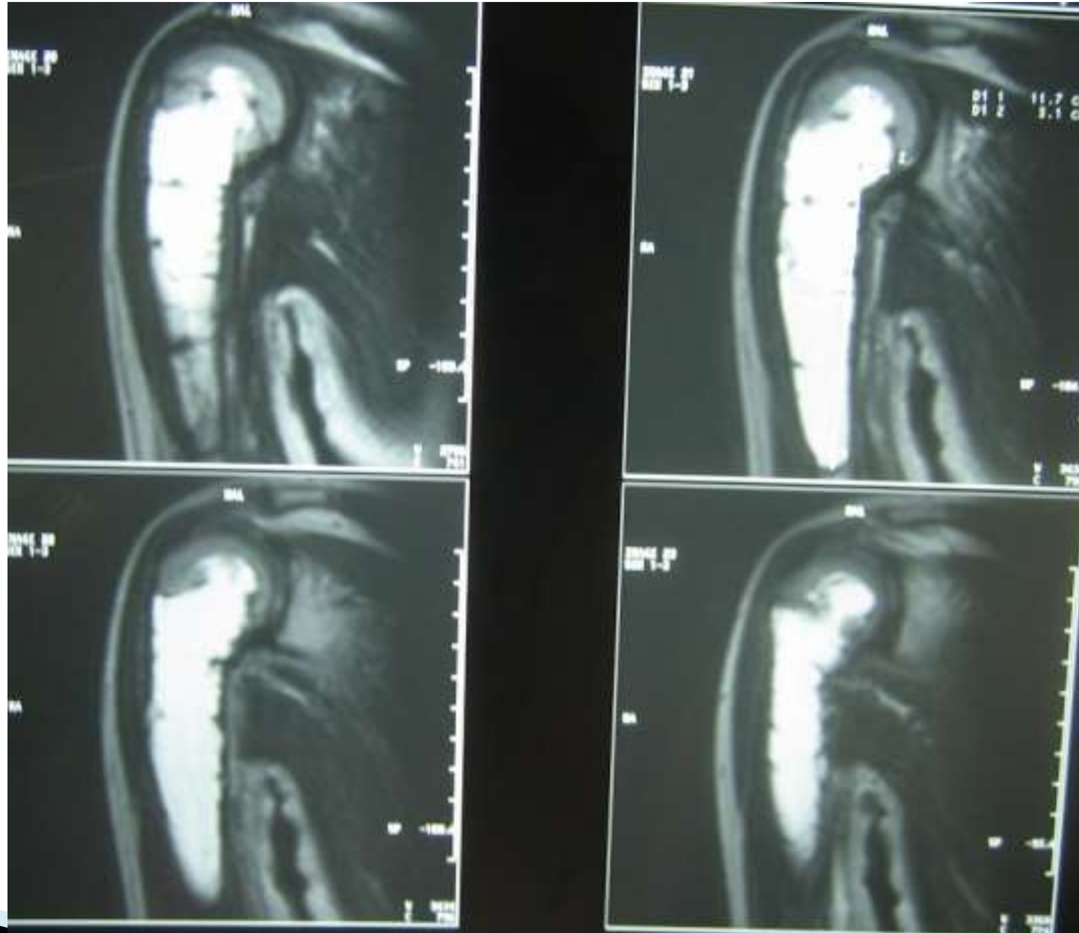


Κορίτσι 11 ετών με διόγκωση άνω άκρου βραχιονίου

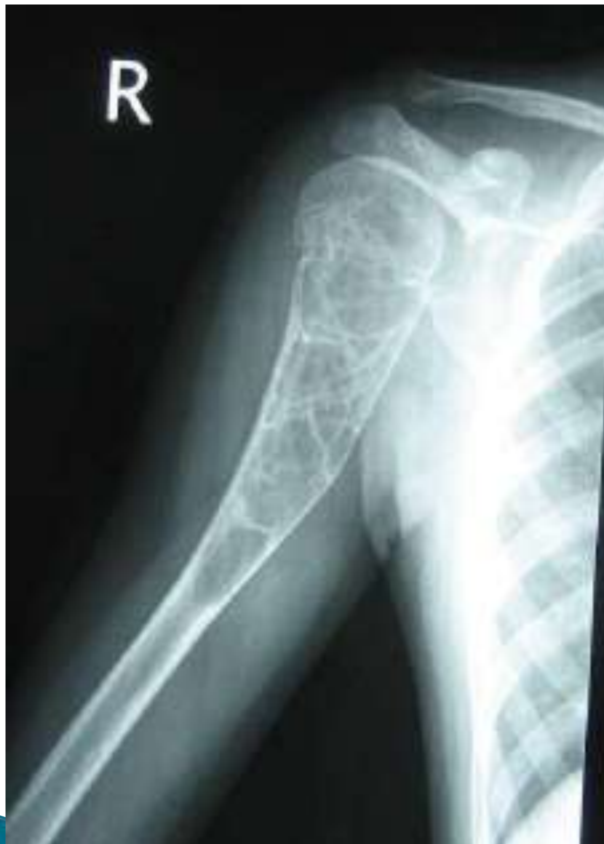




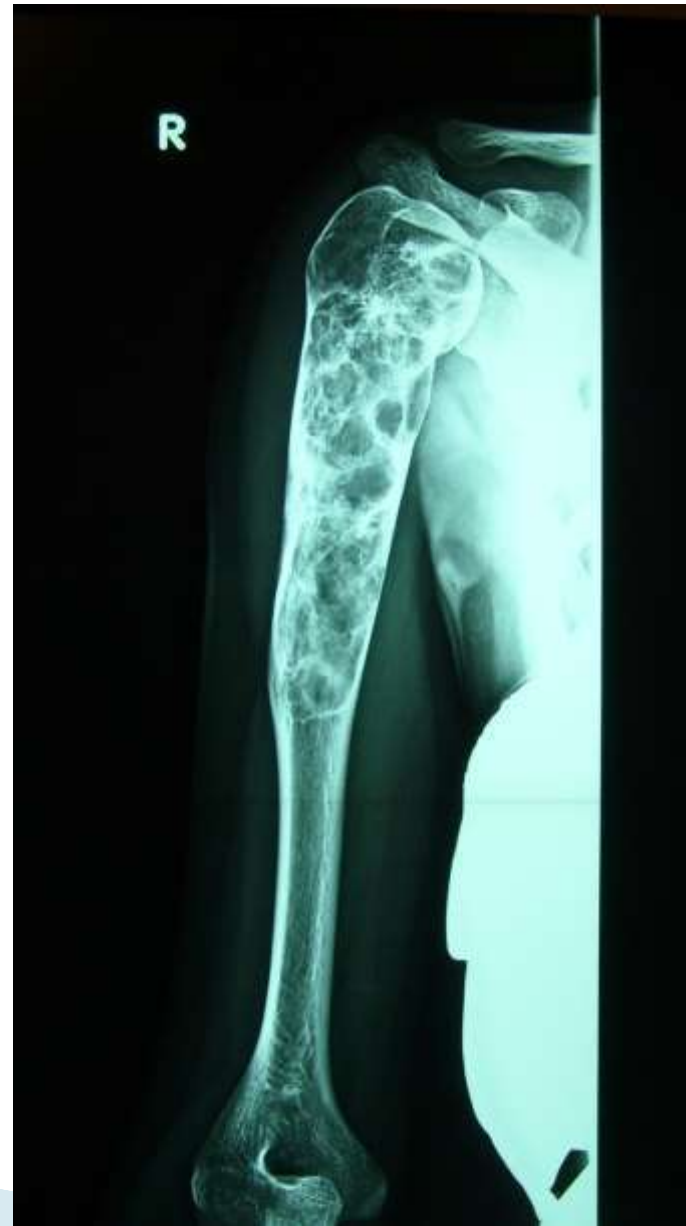
Κορίτσι 11 ετών με διόγκωση άνω άκρου βραχιονίου



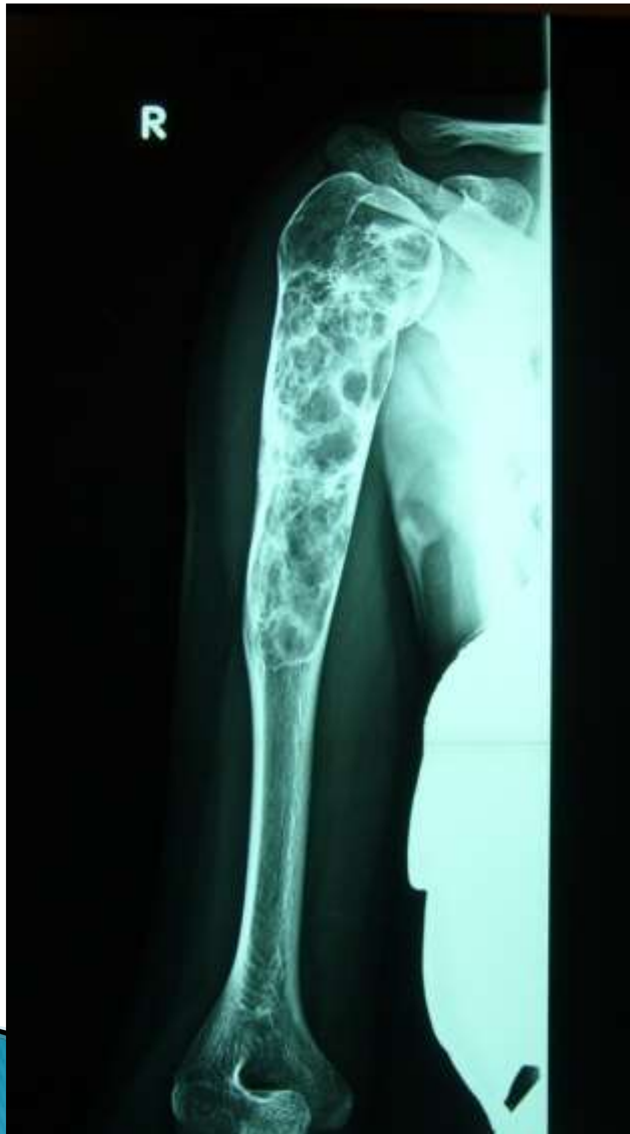
Κορίτσι 11 ετών με διόγκωση άνω άκρου βραχιονίου



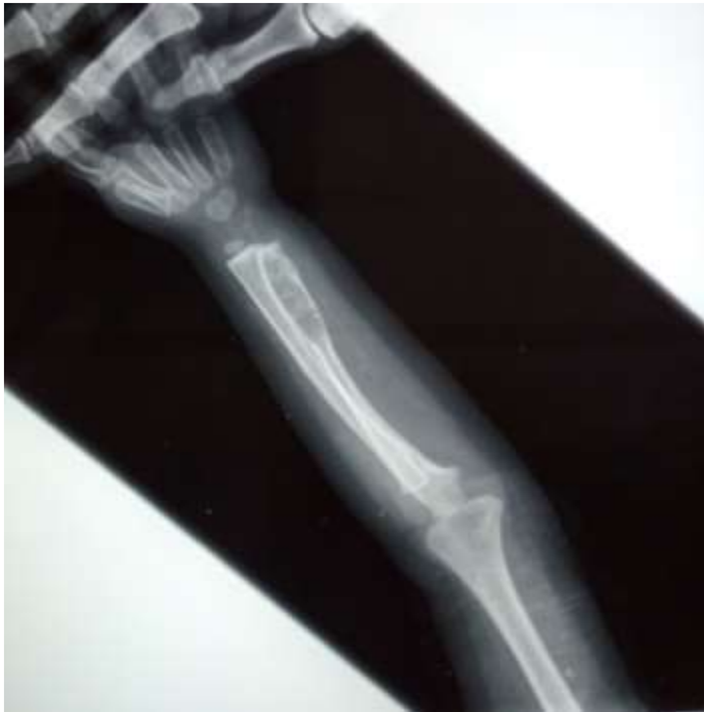
Ανευρυσματική κύστη απόξεση μοσχεύματα

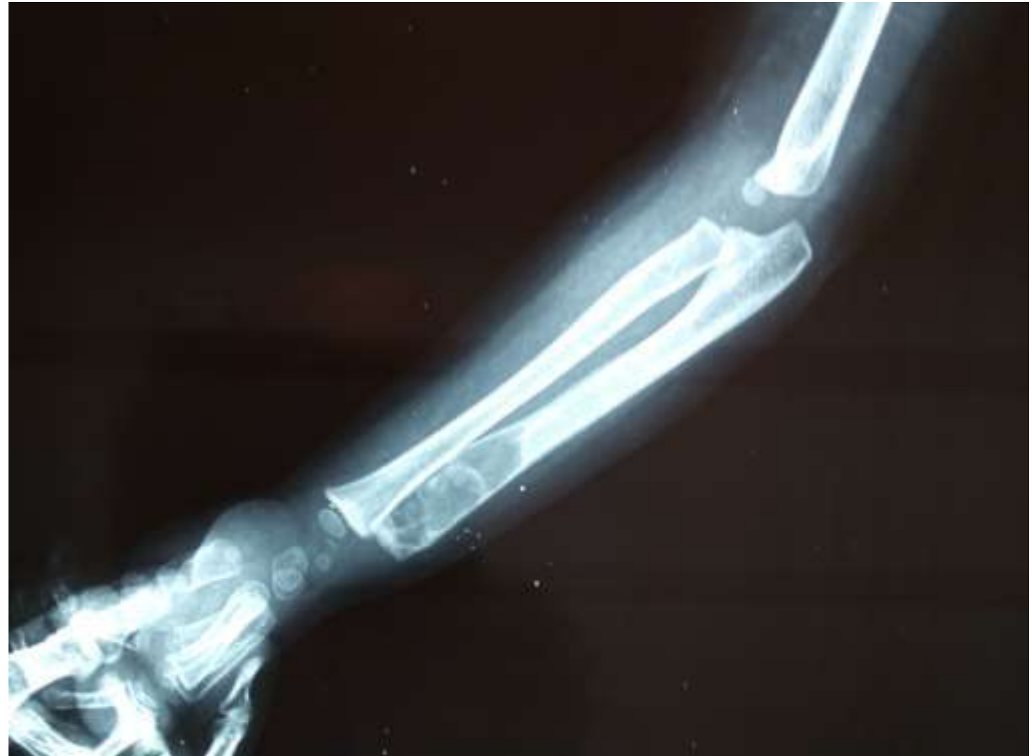


Koumari Αδένωμα παραθυρεοειδών

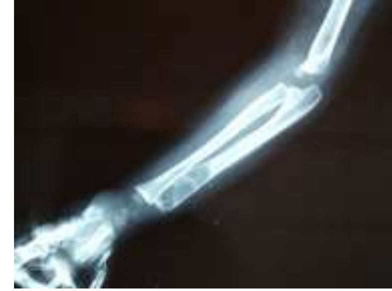


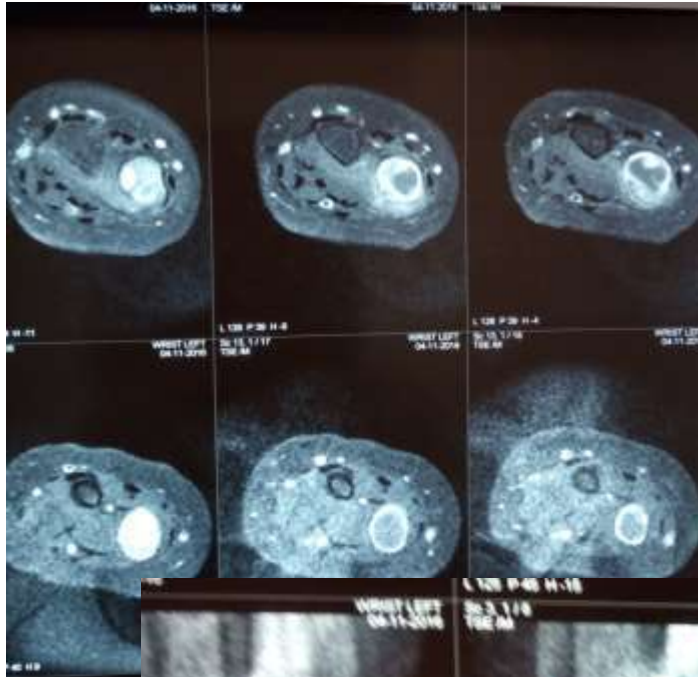
ABC distal ulna

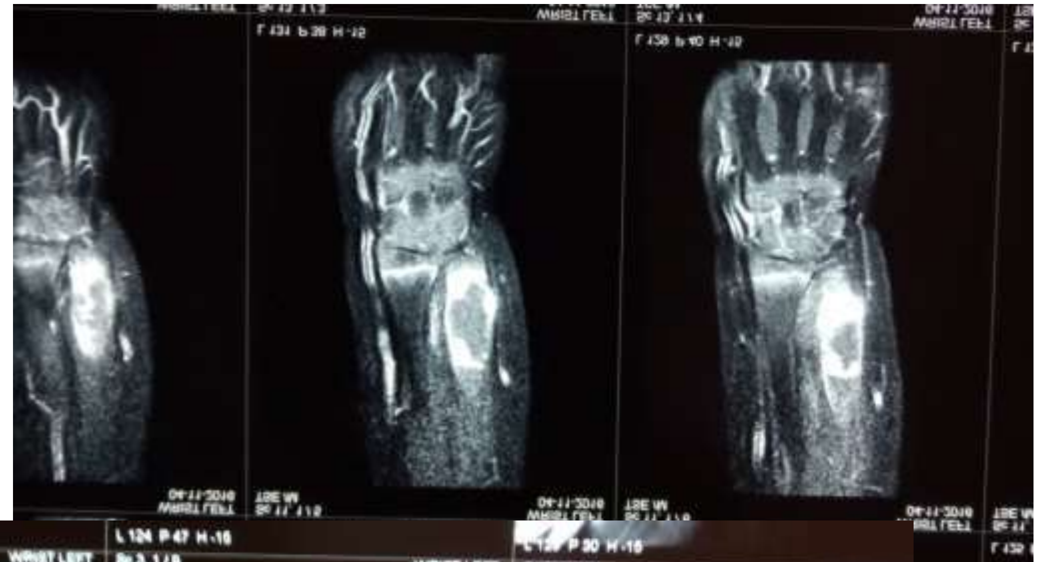


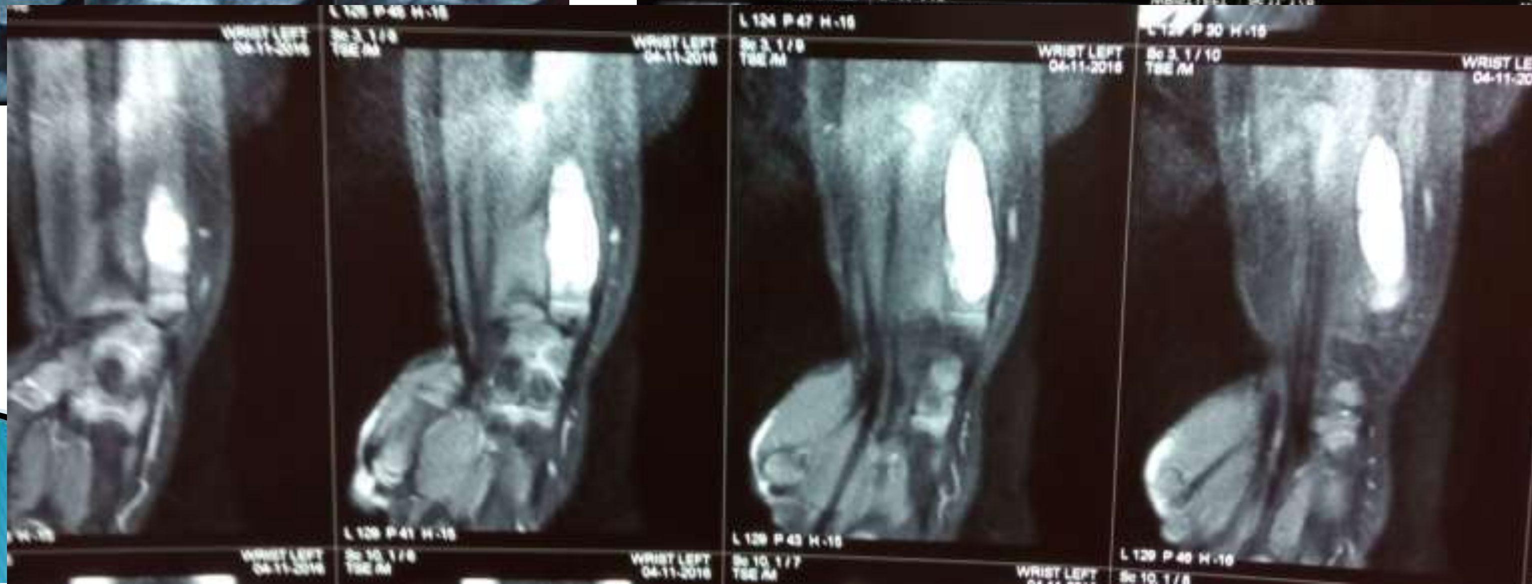


ABC distal ulna

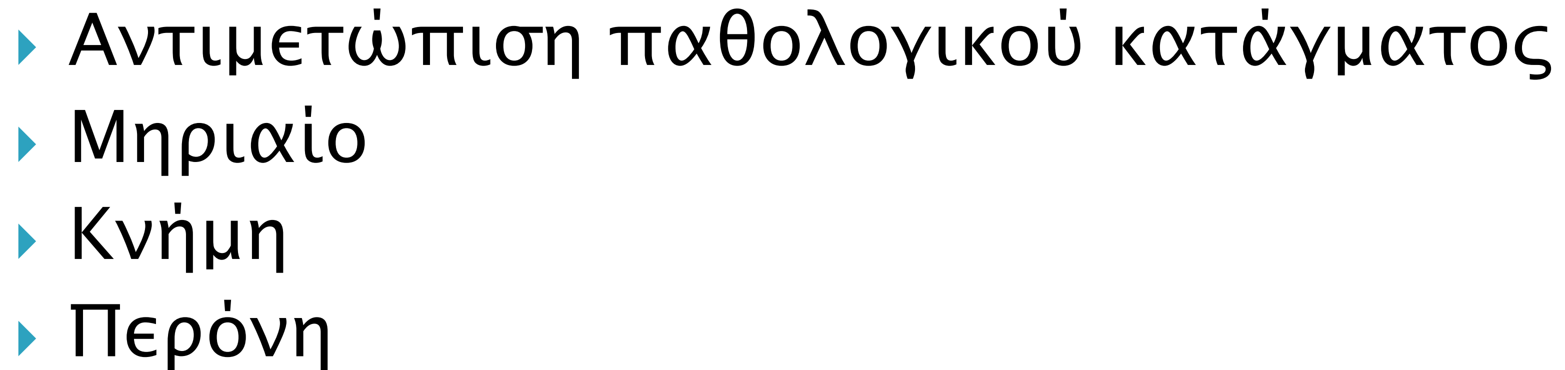






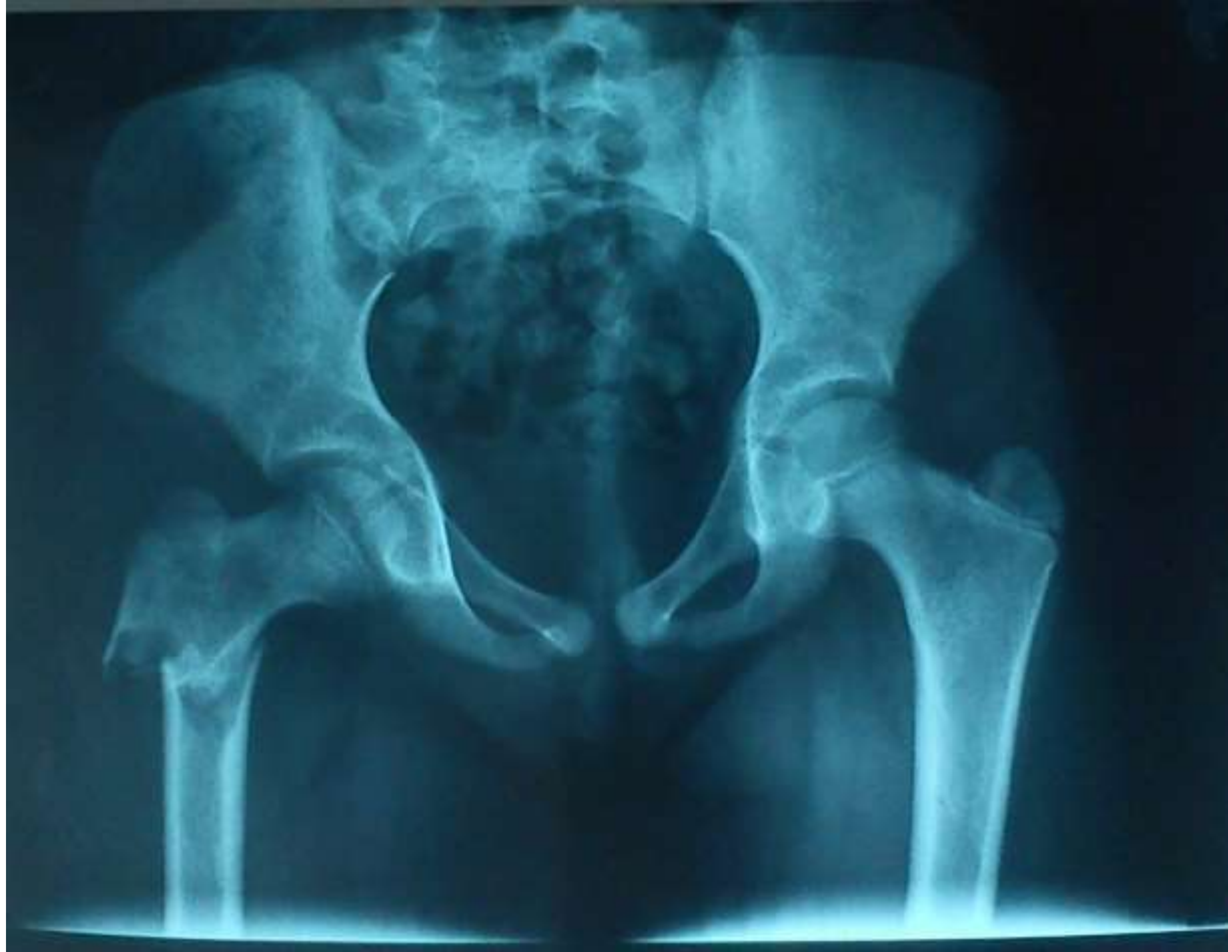


Κύστεις κάτω άκρου



- Αντιμετώπιση παθολογικού κατάγματος
- Μηριαίο
- Κνήμη
- Περόνη

Ασμ..



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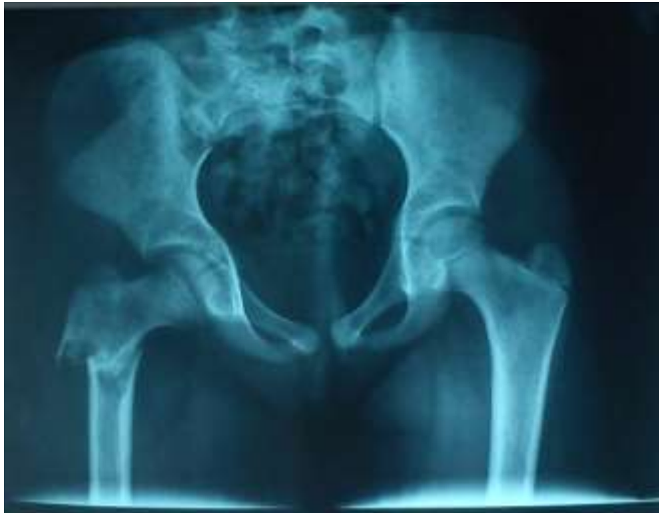

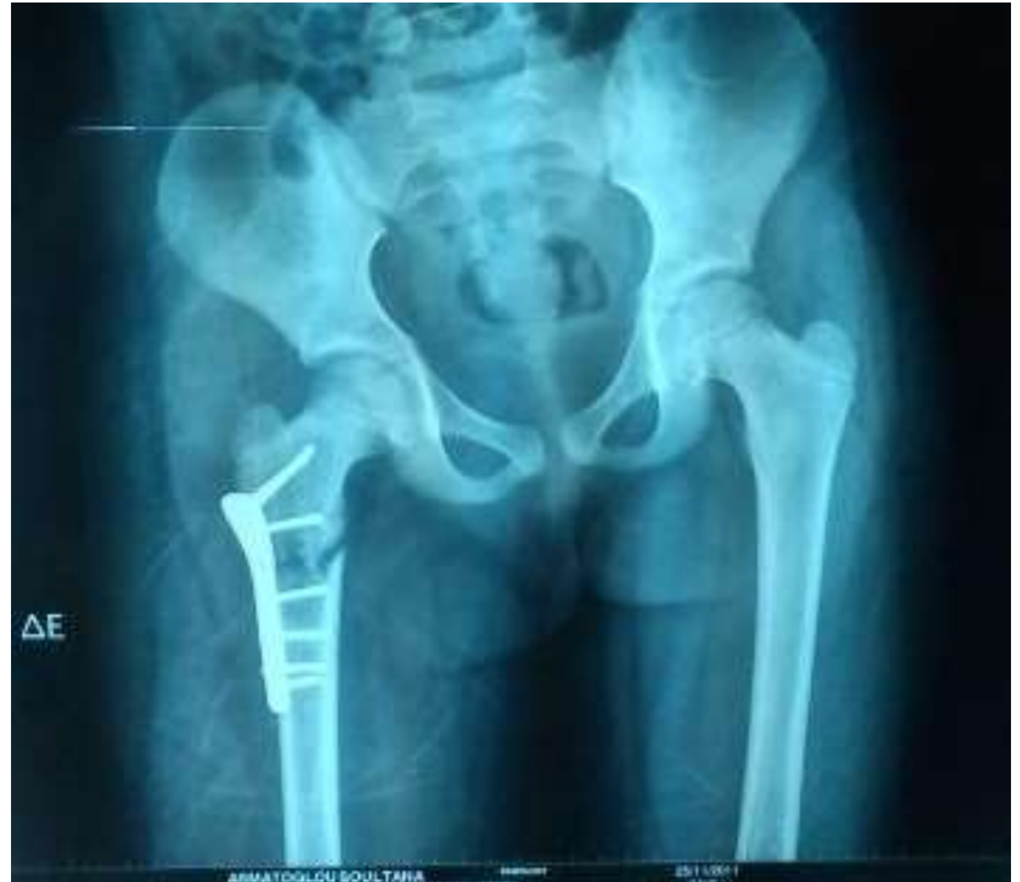

Kar Andr fractured cyst

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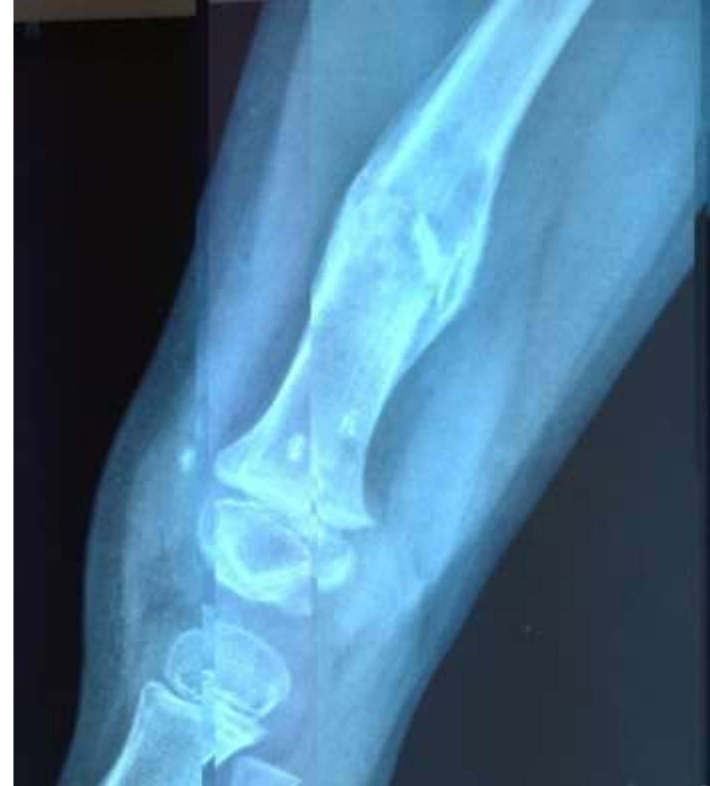

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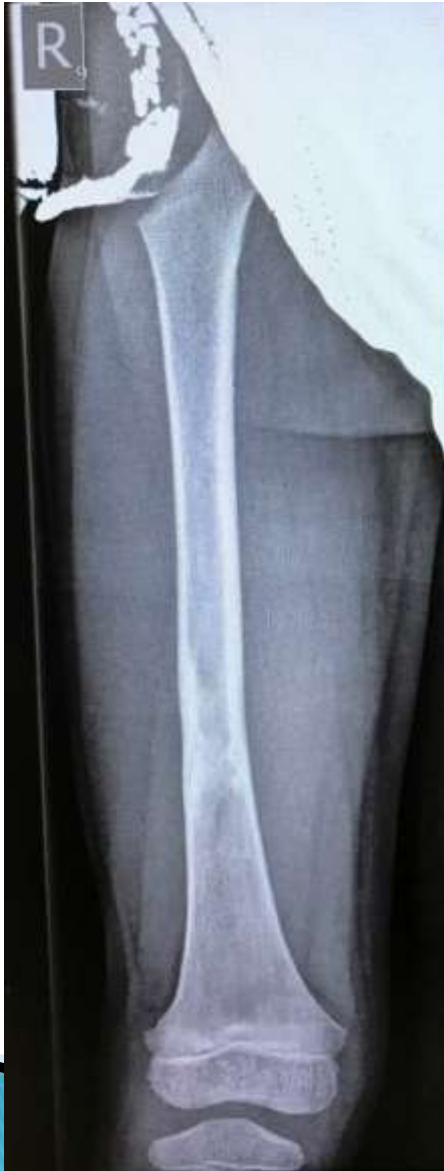

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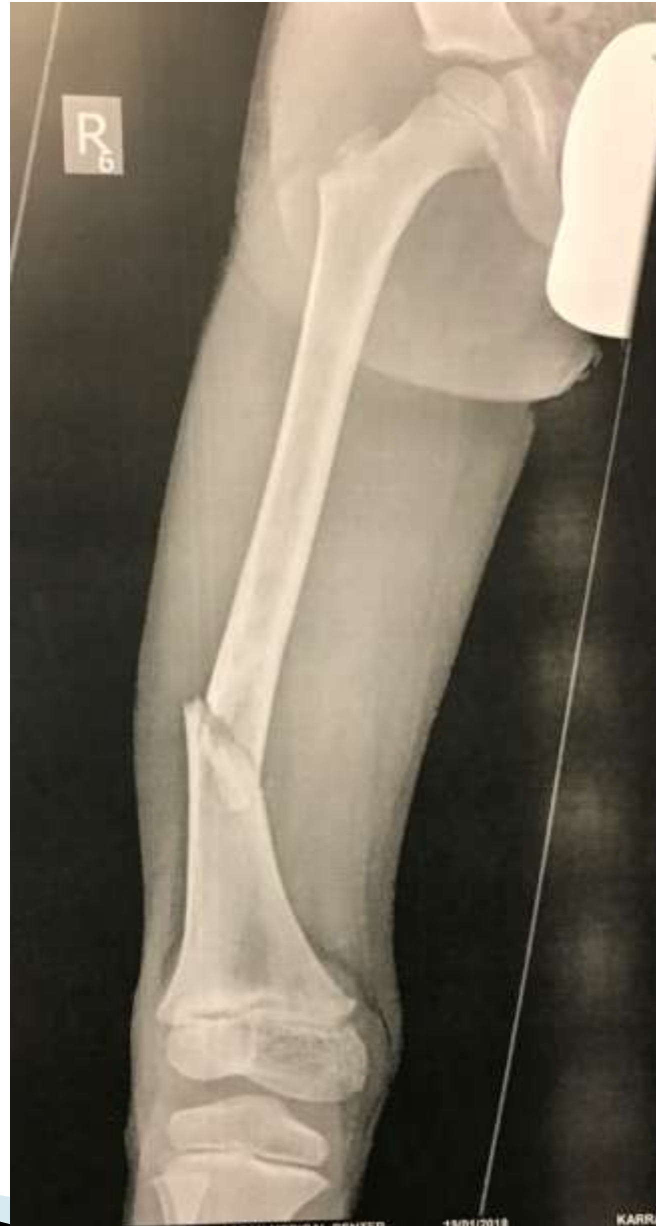

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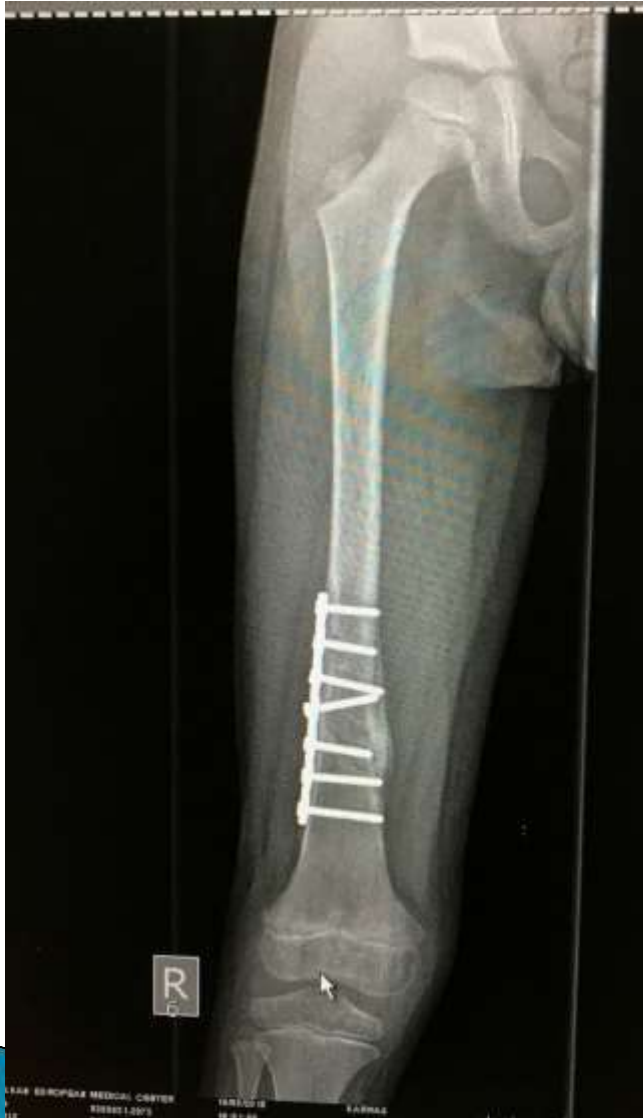
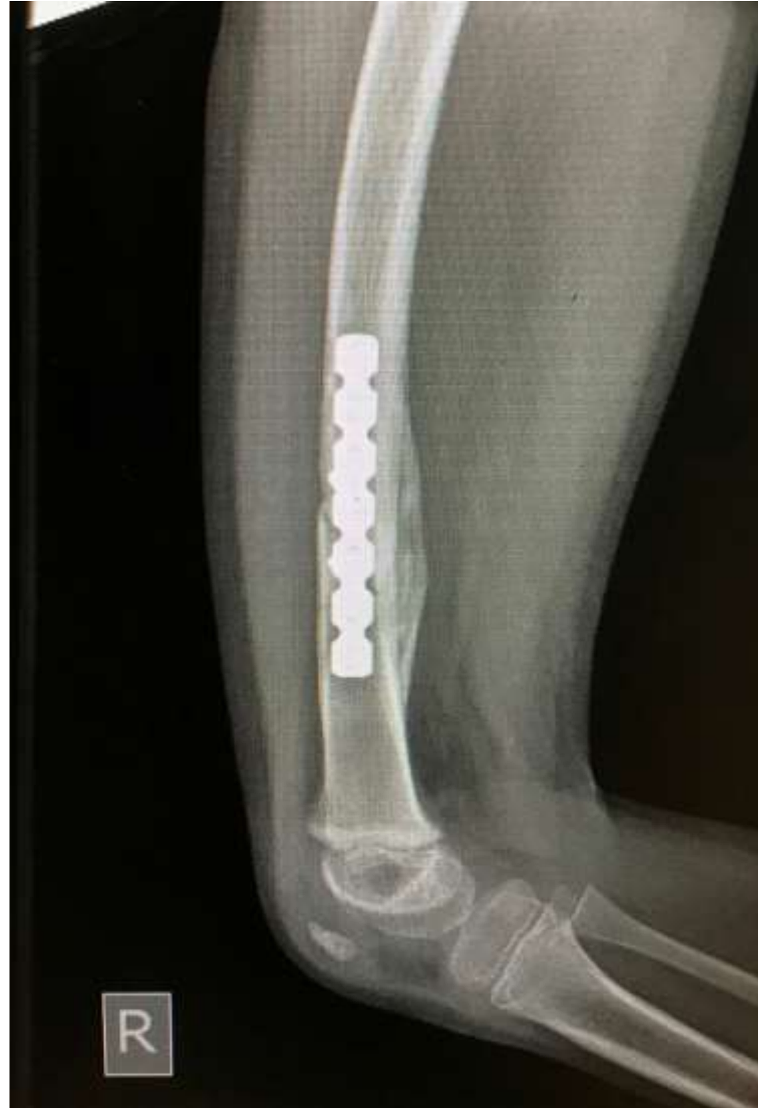
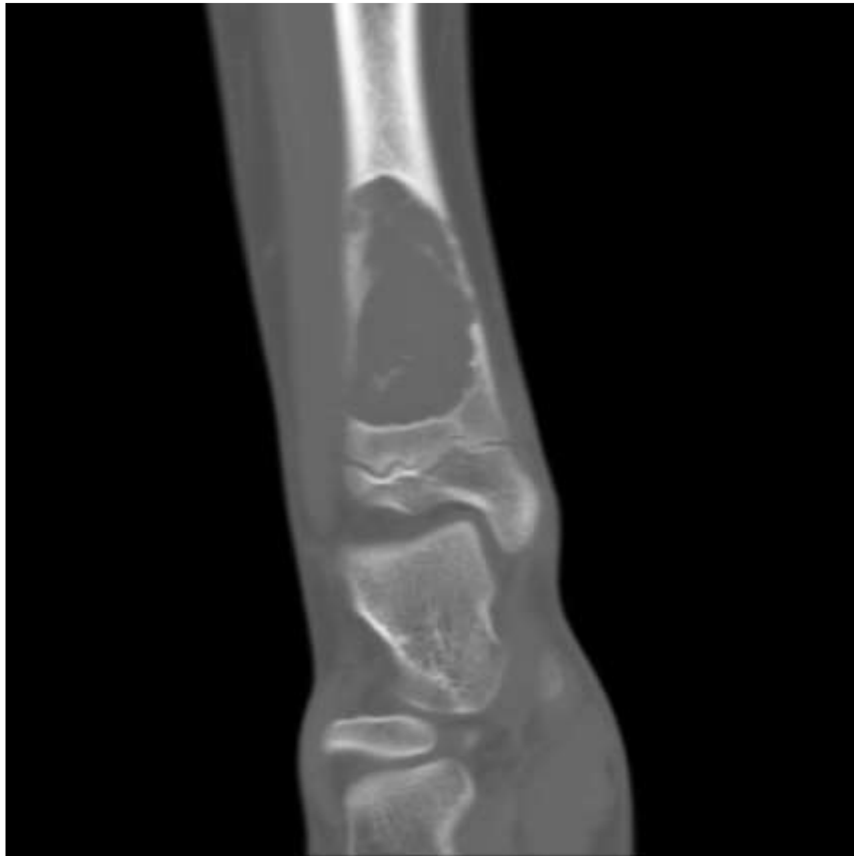
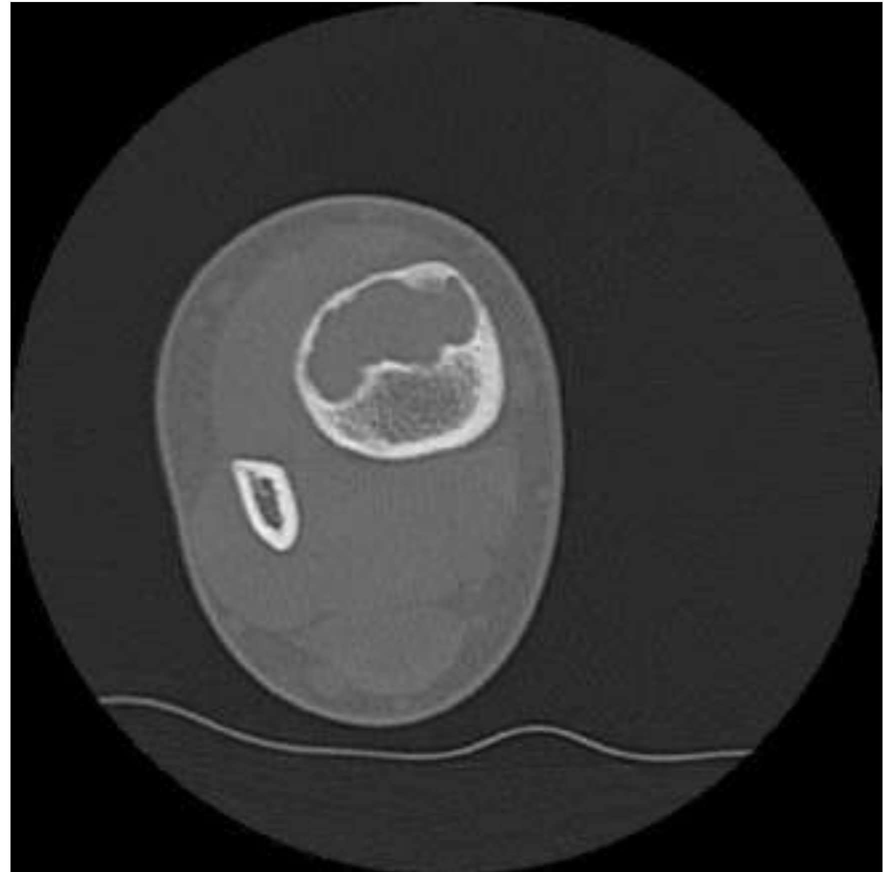




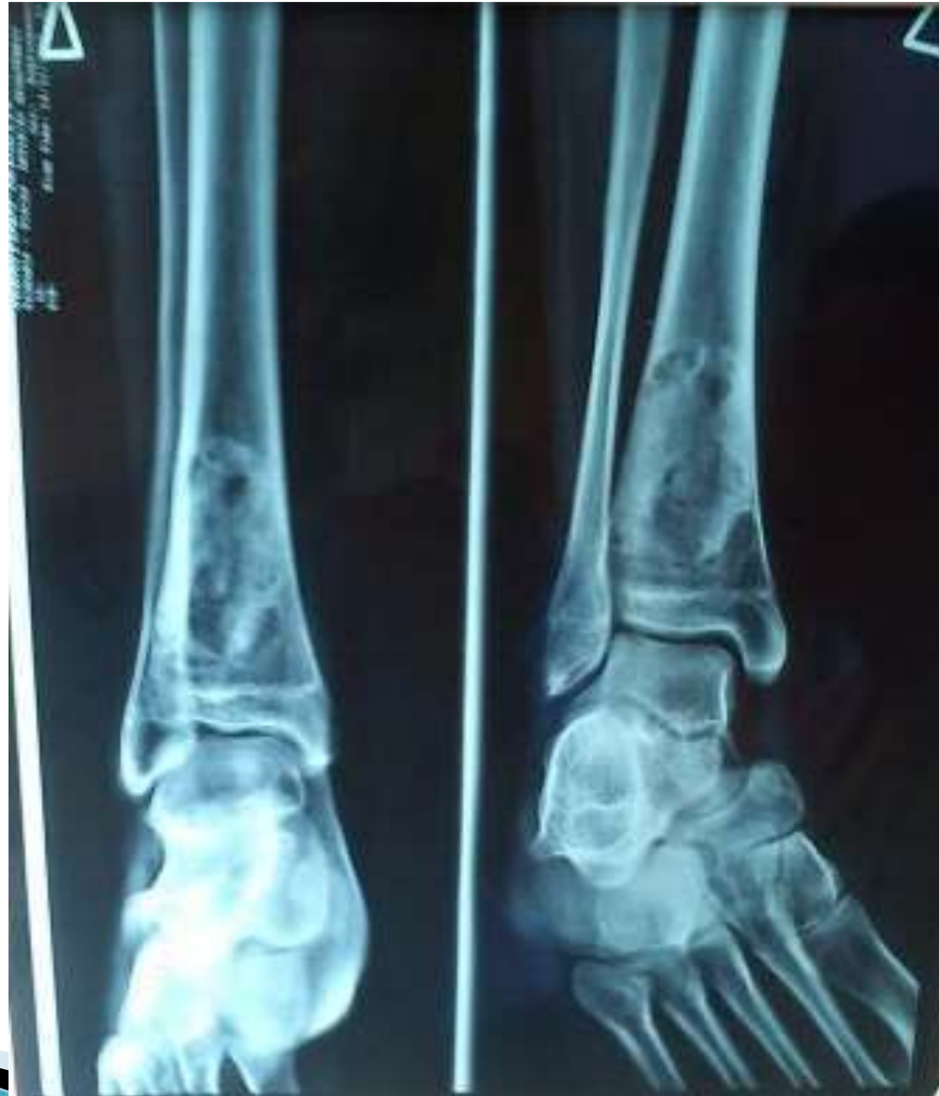
sevast distal tibia



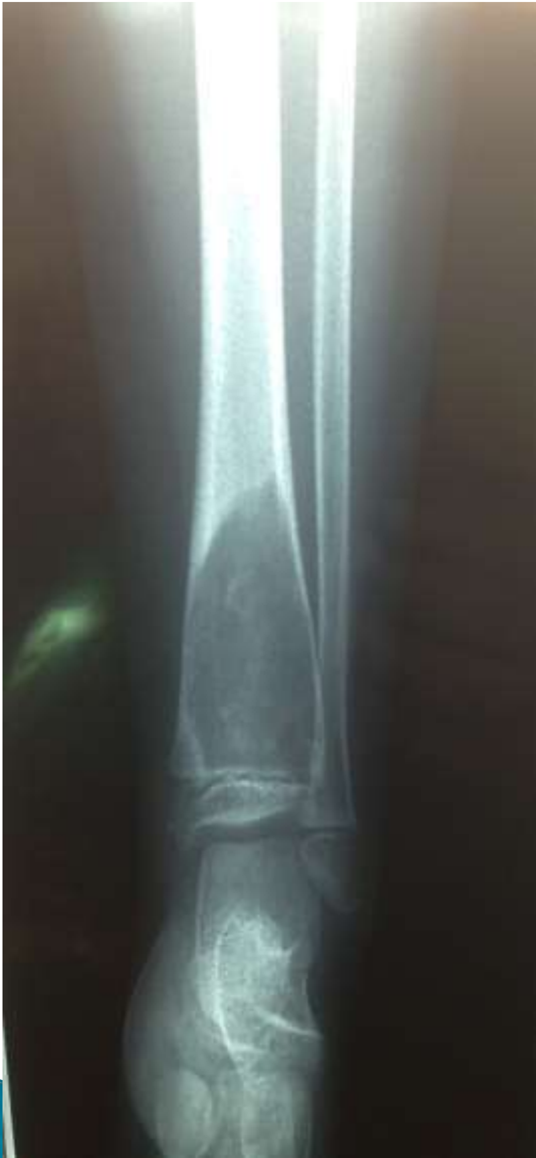


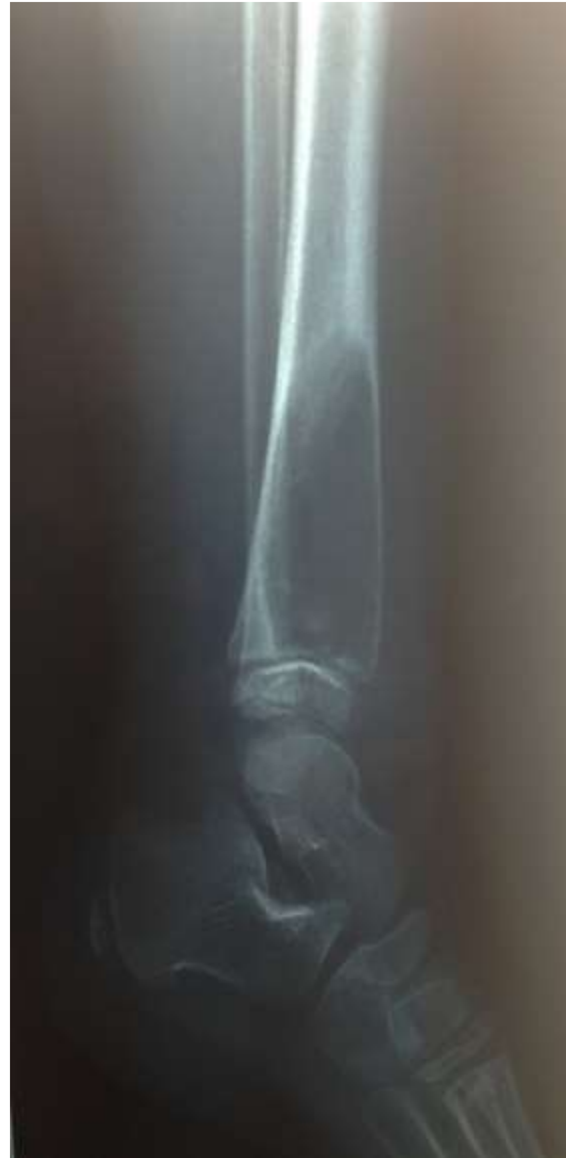
sevast distal tibia

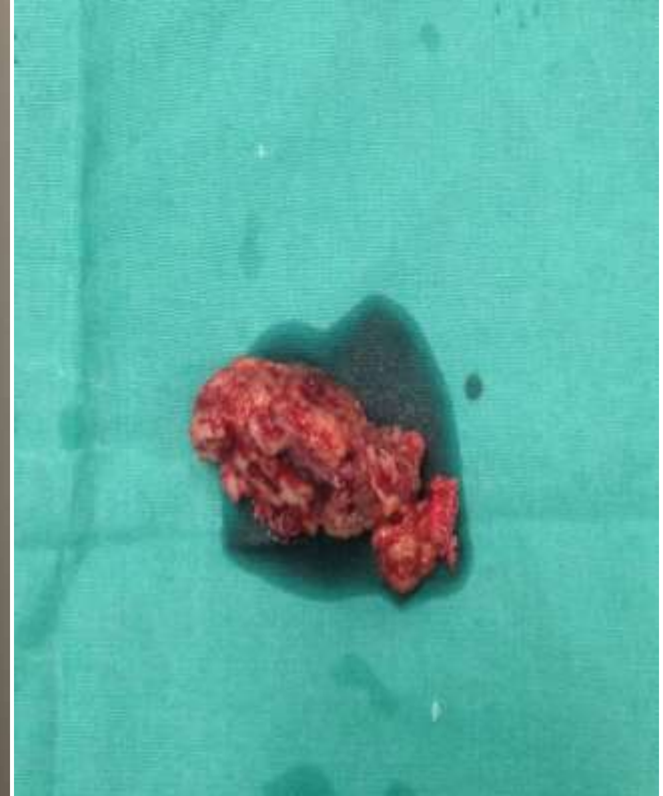
sevast distal tibia



Daskal initial







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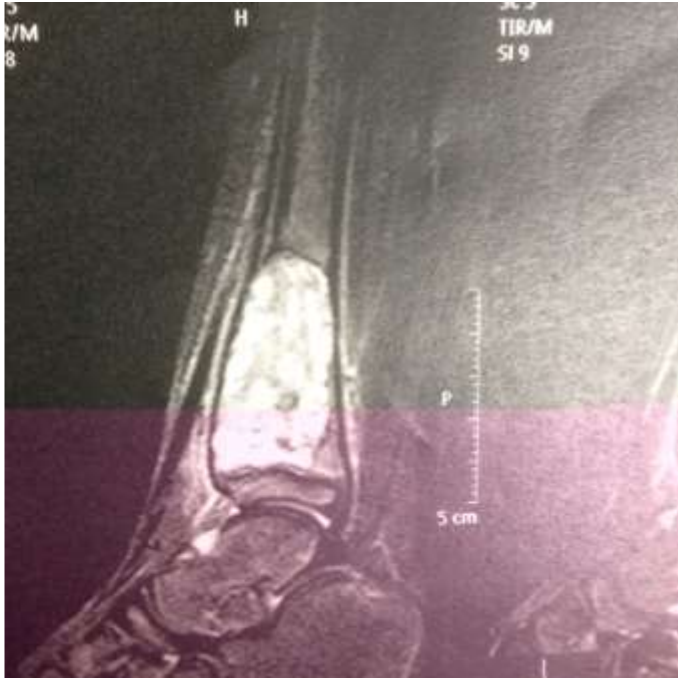
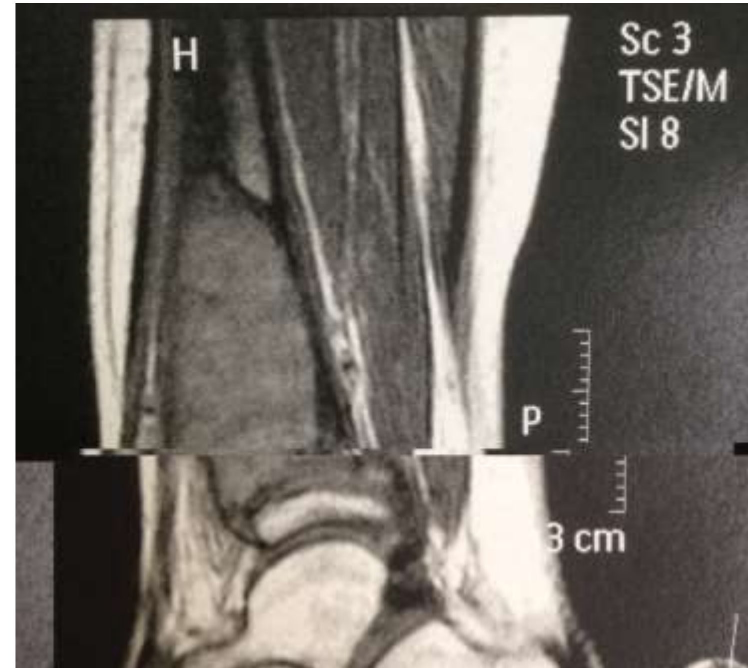
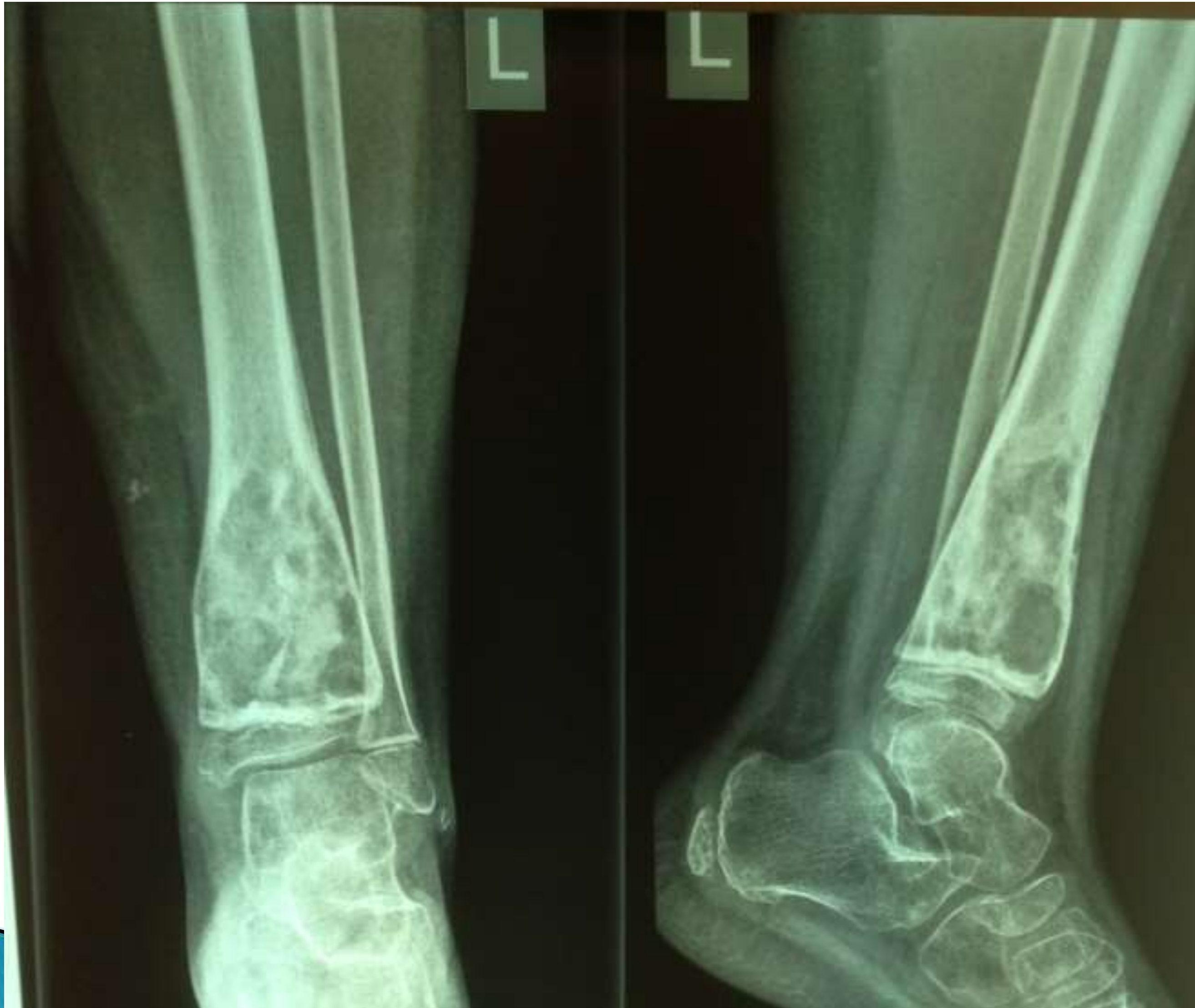




Daskal operative treatment



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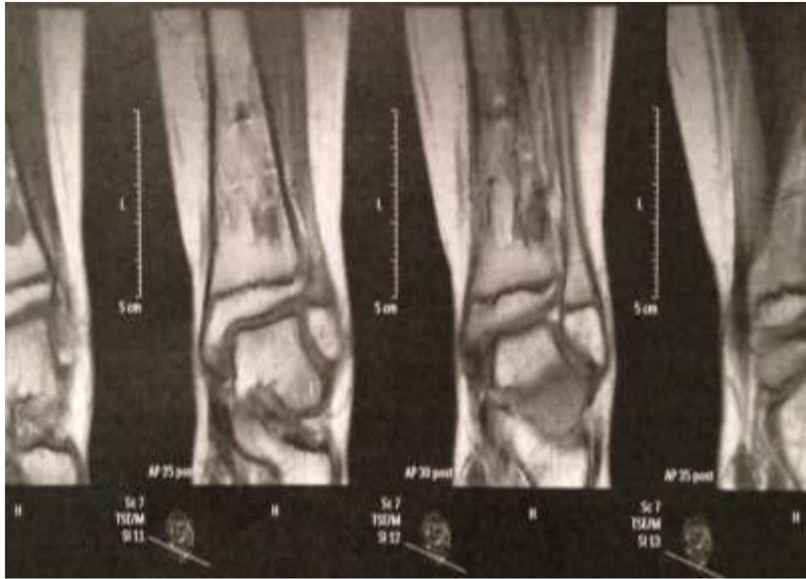

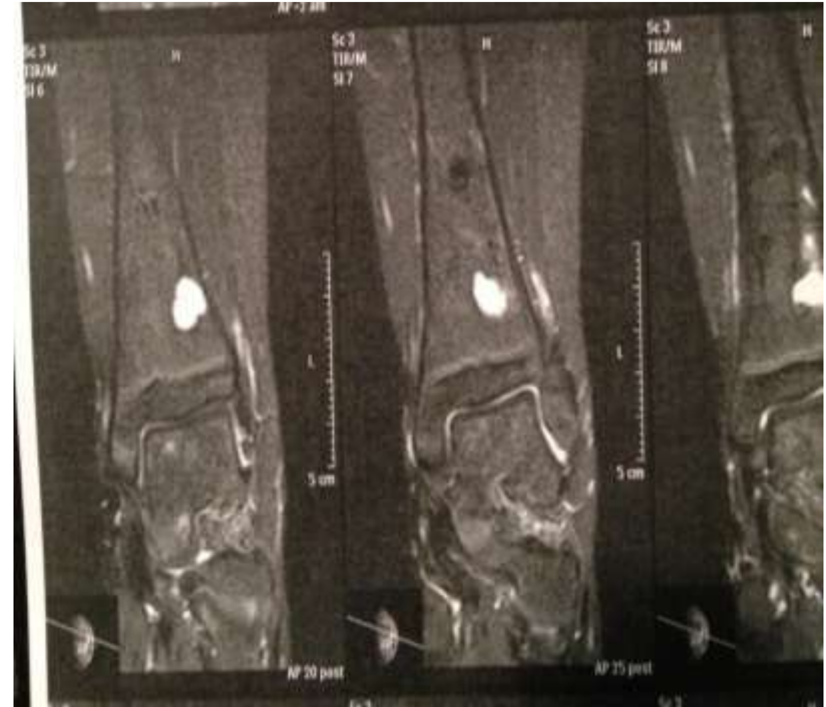

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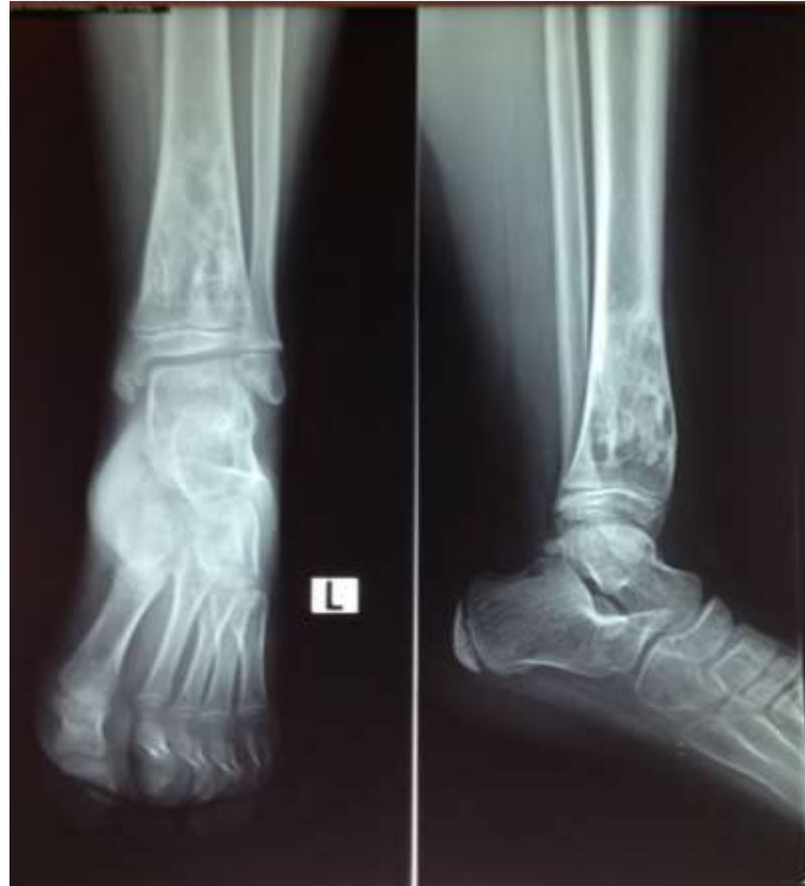
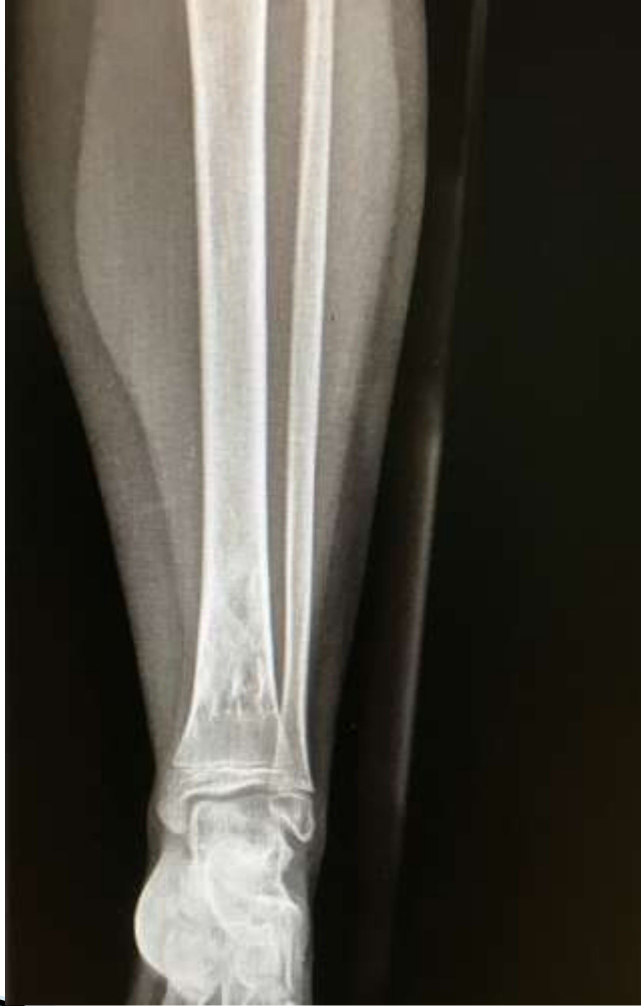
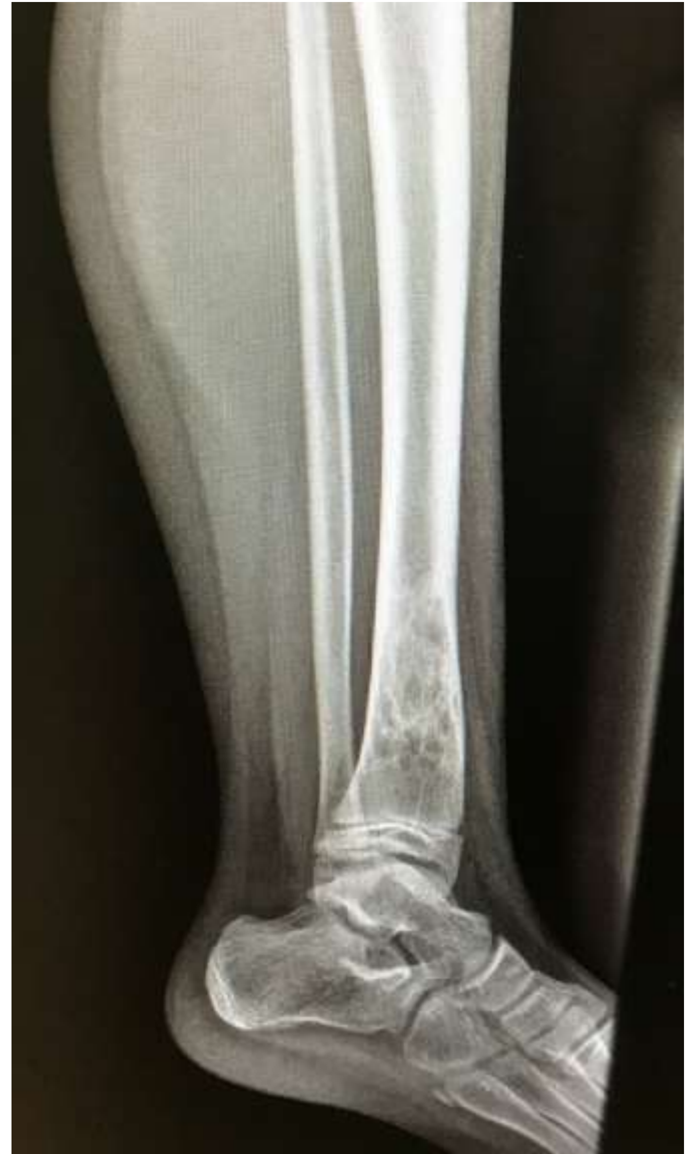
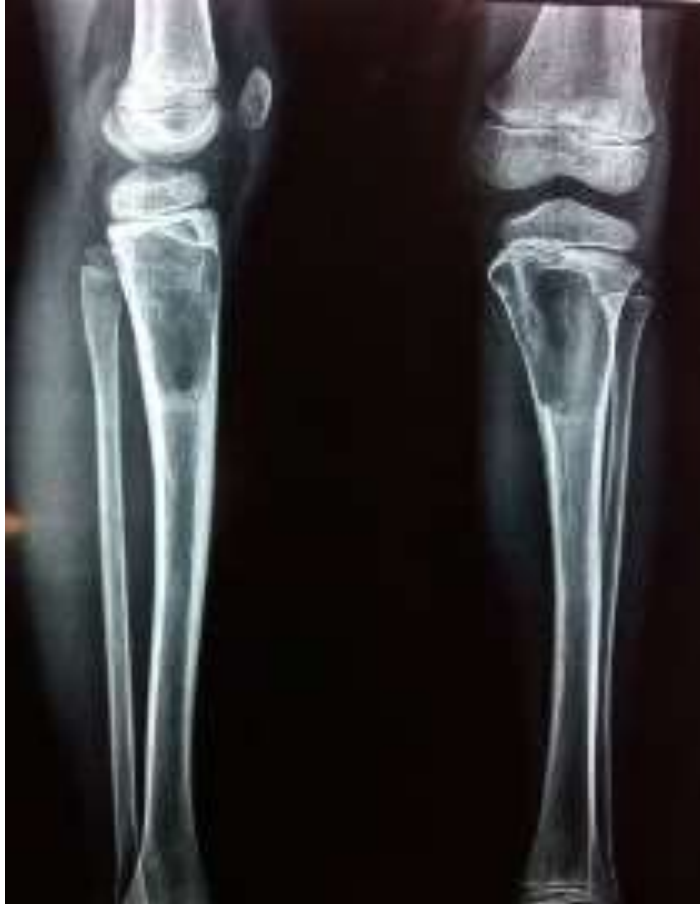


Daskal operative treatment

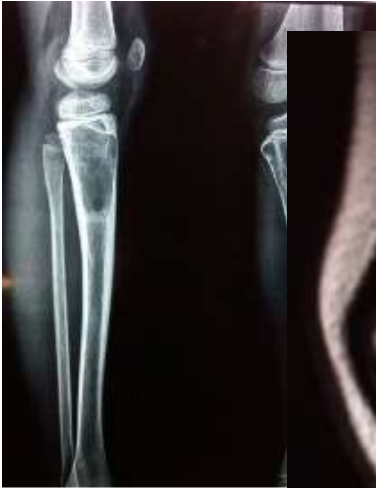


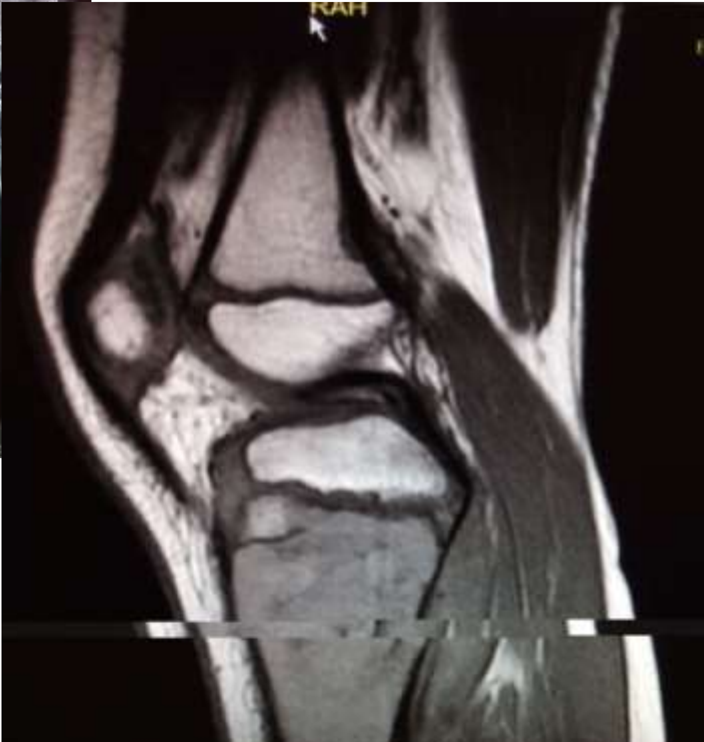


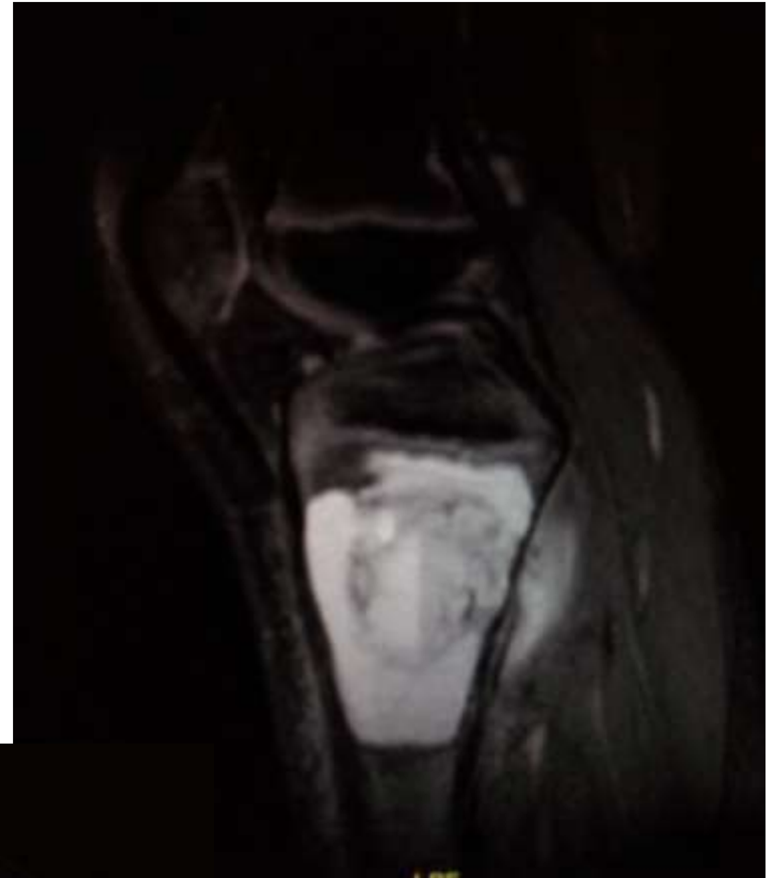
Georgiou upper tibia

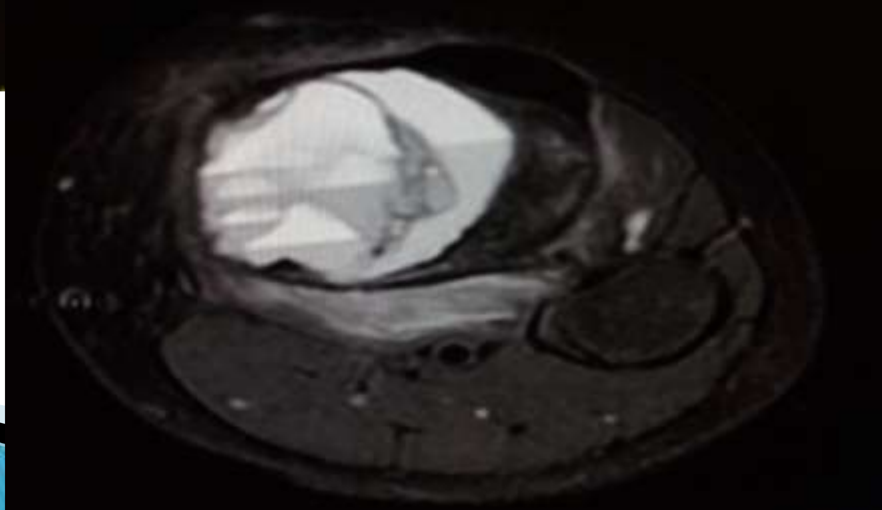


Georgiou upper tibia

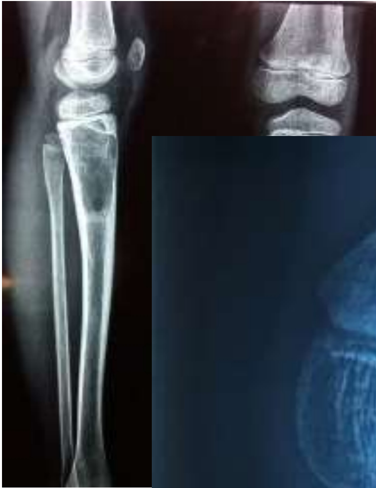




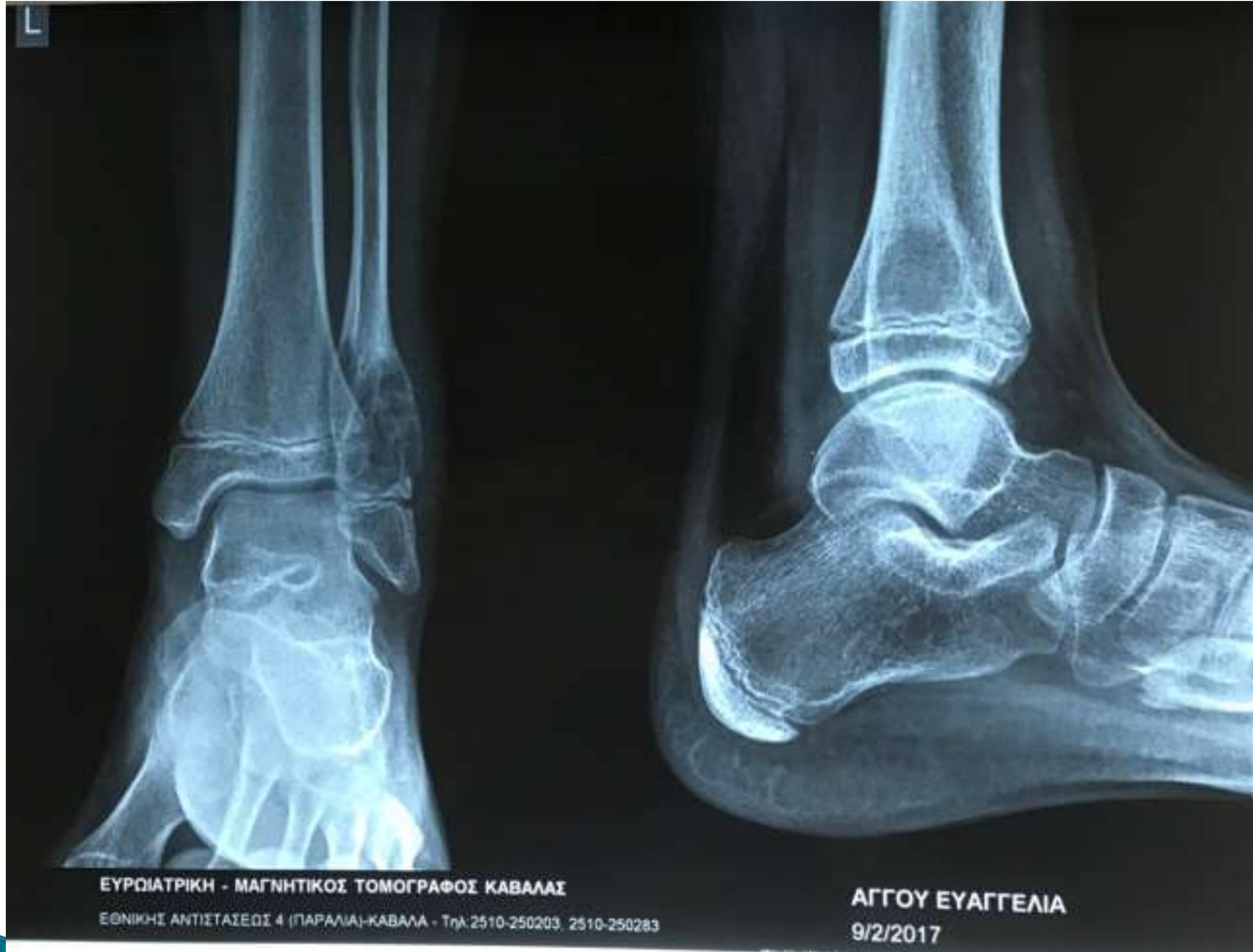




Georgiou upper tibia



Fibula bone cyst agg



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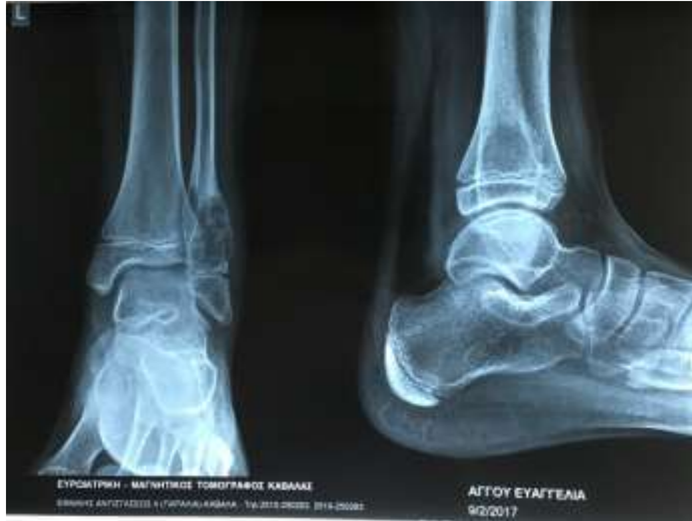

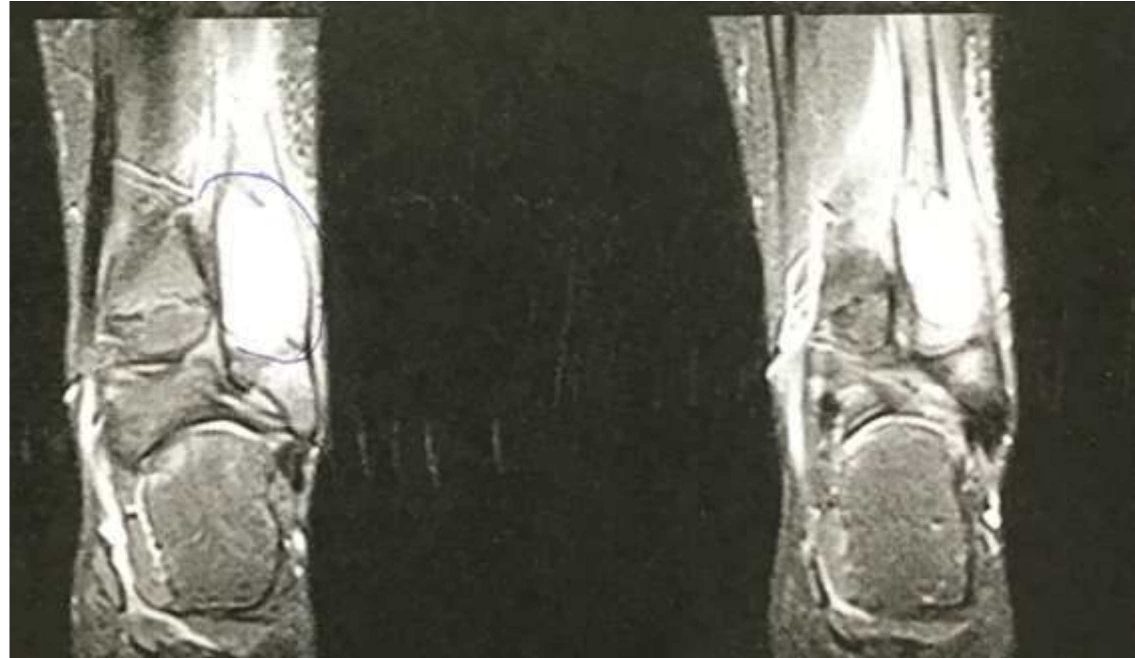

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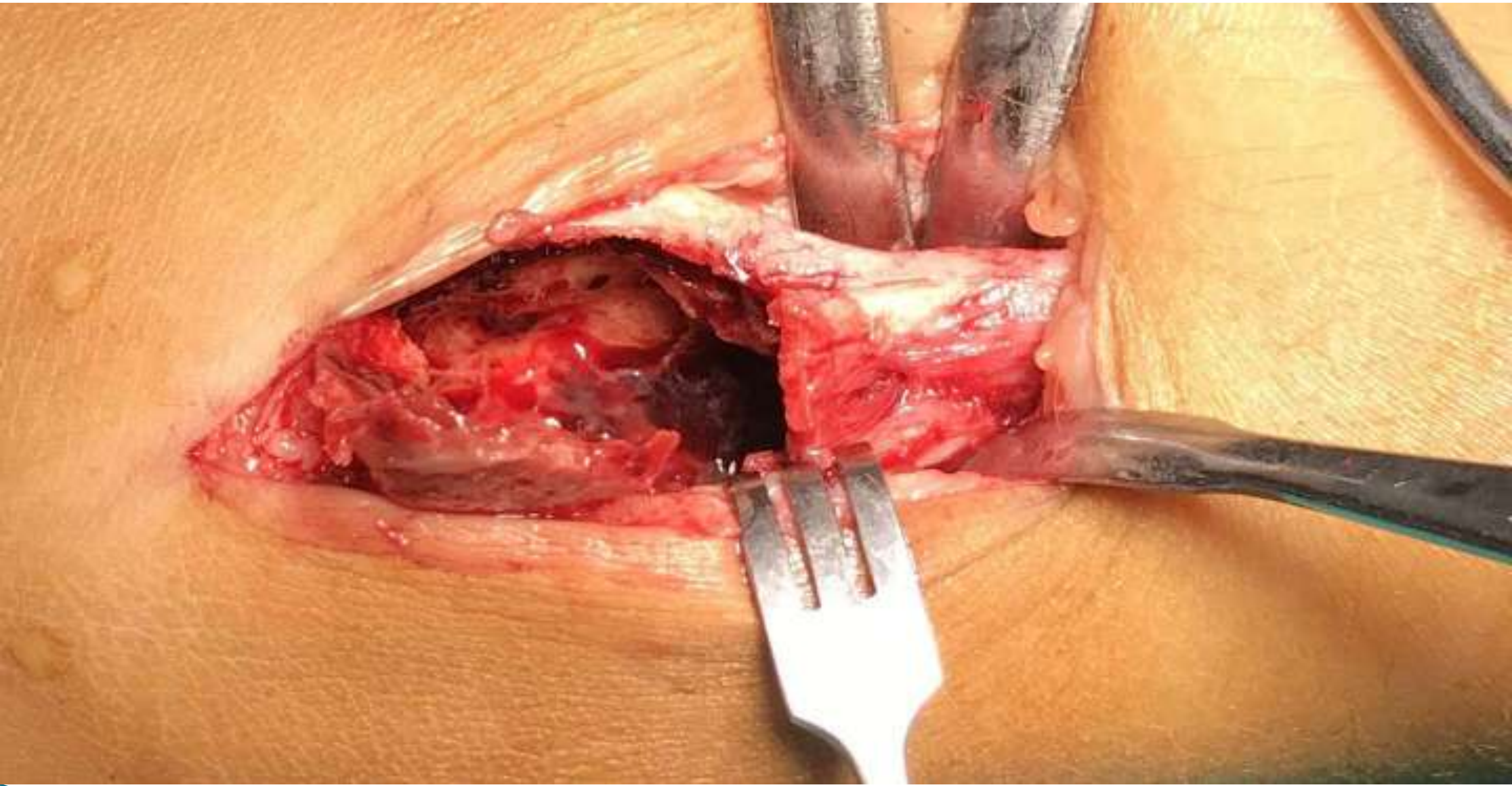
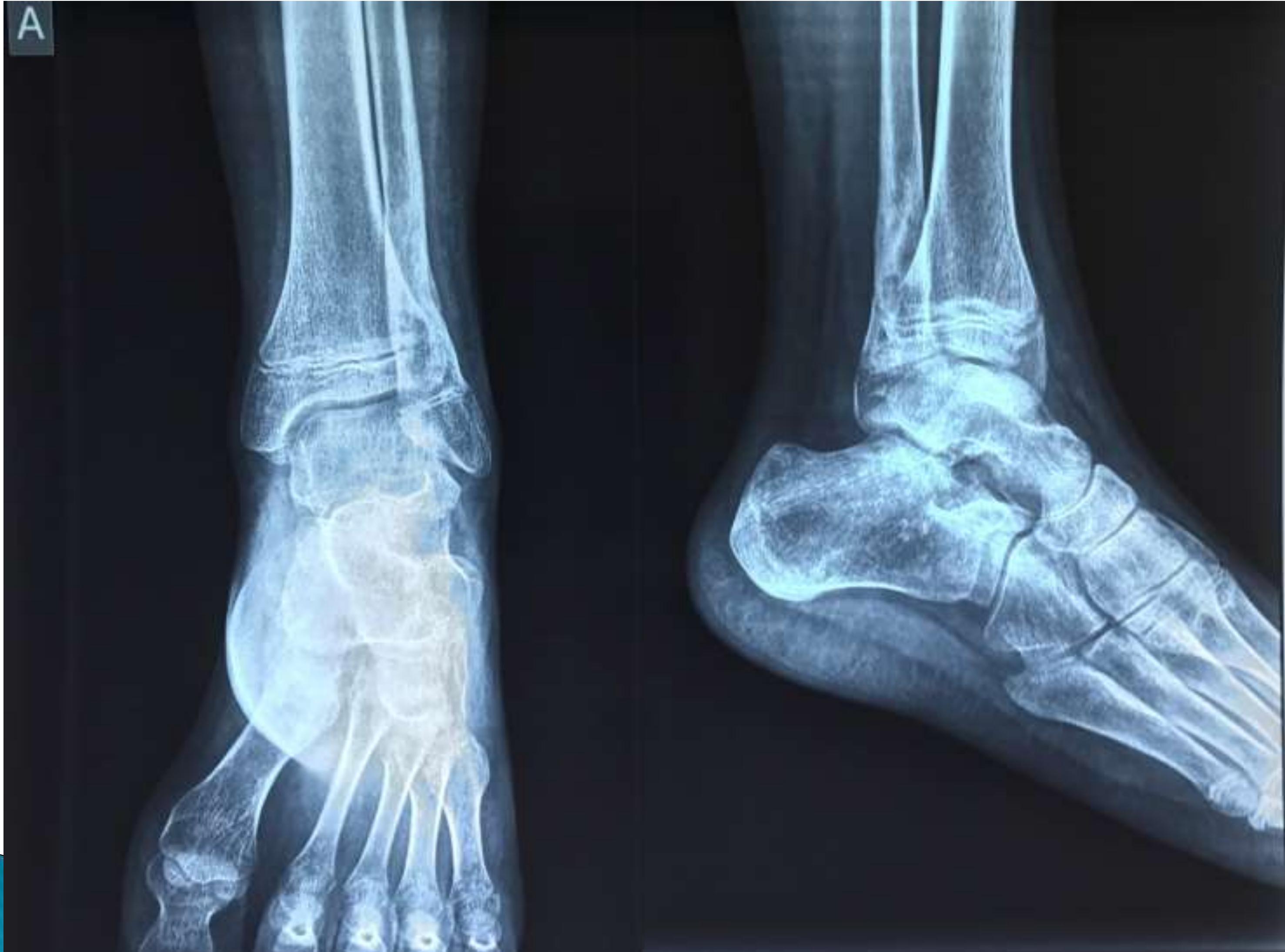
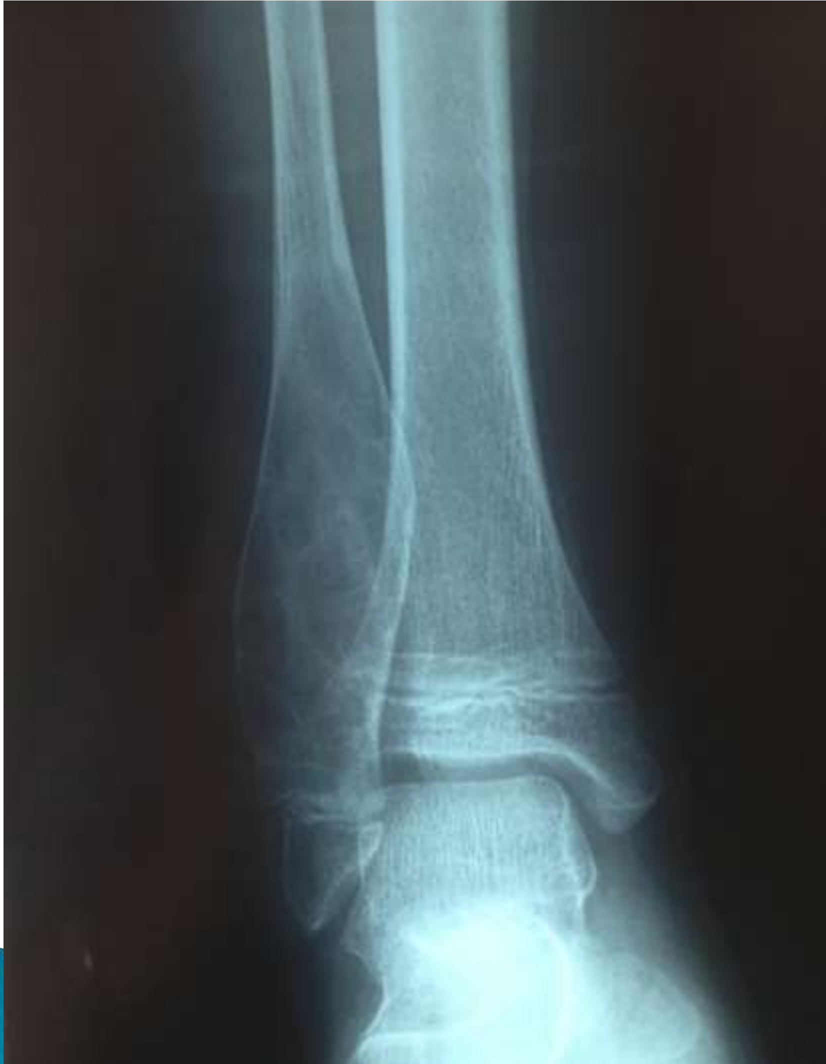


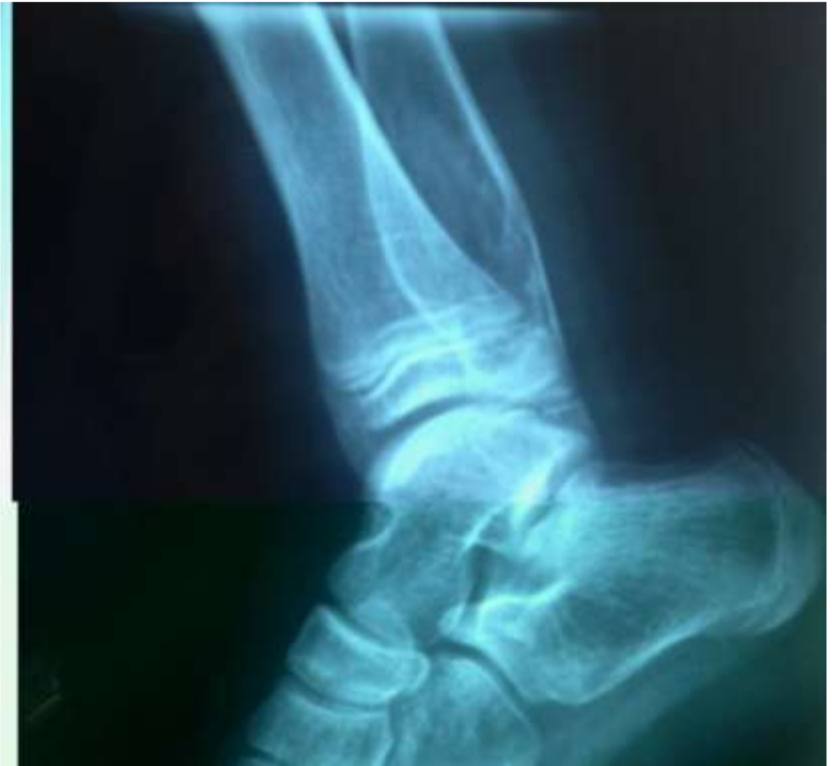
Fibula bone cyst agg result



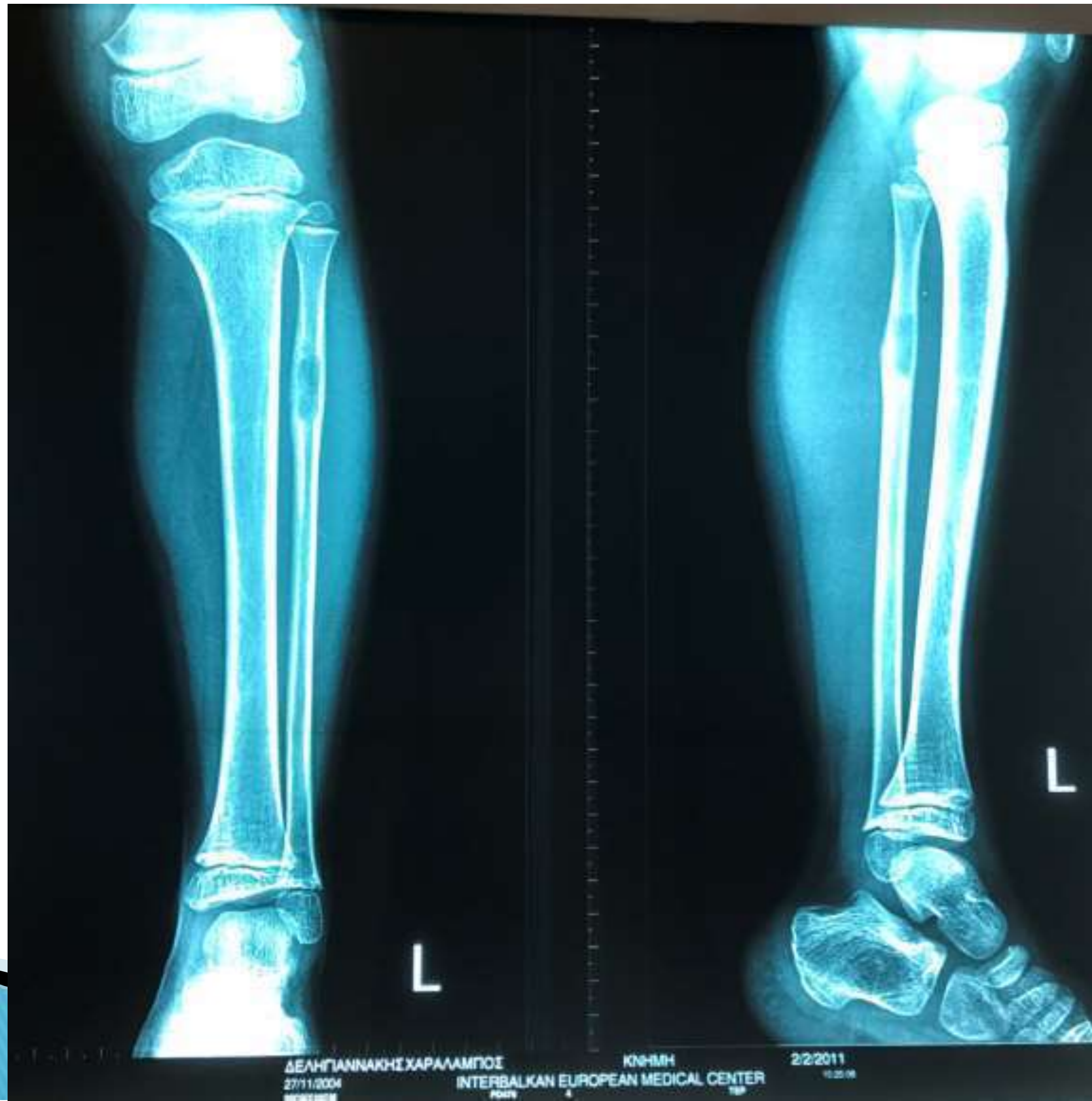
Fibula bone cyst afoux recurrence

Fibula bone cyst afoux recurrence





Fibula bone cyst deligian natural history 2011



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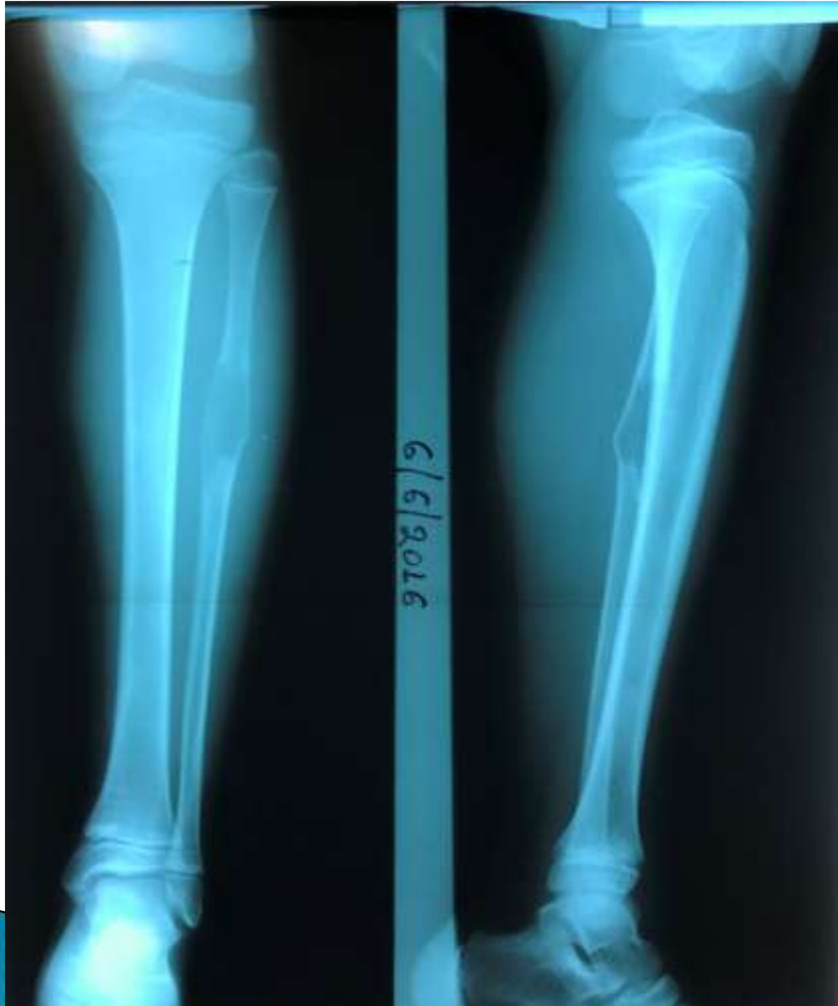

Fibula bone cyst deligian natural history 2017

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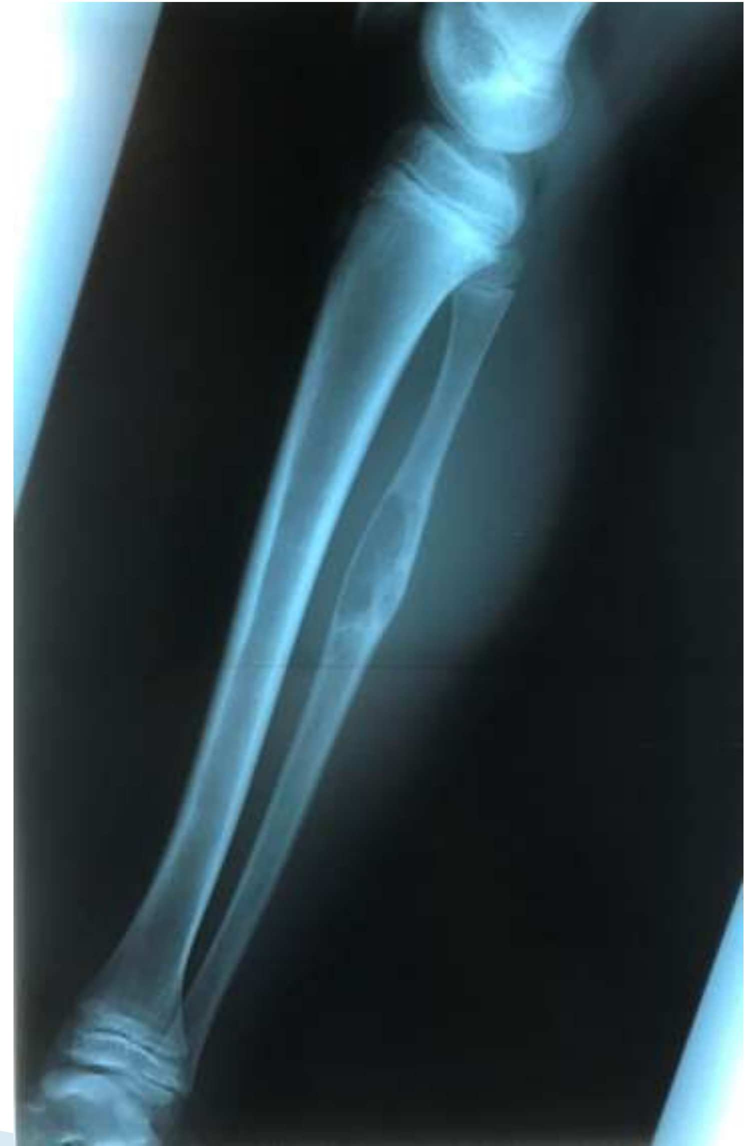
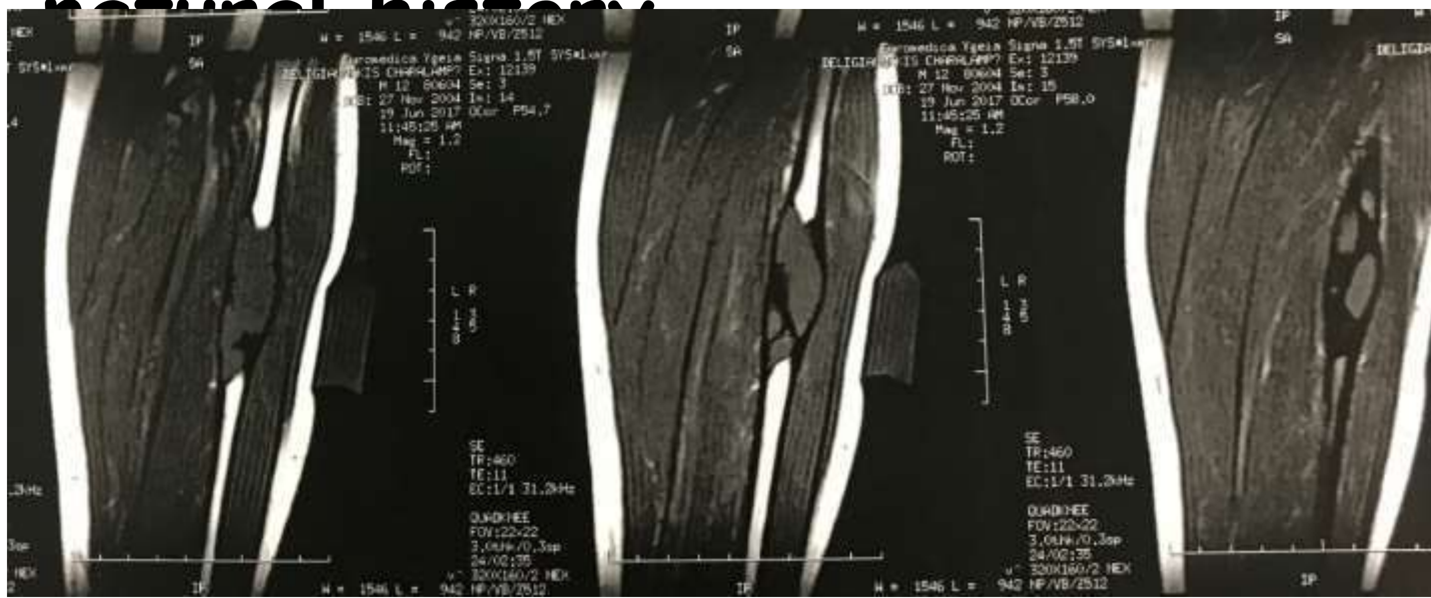
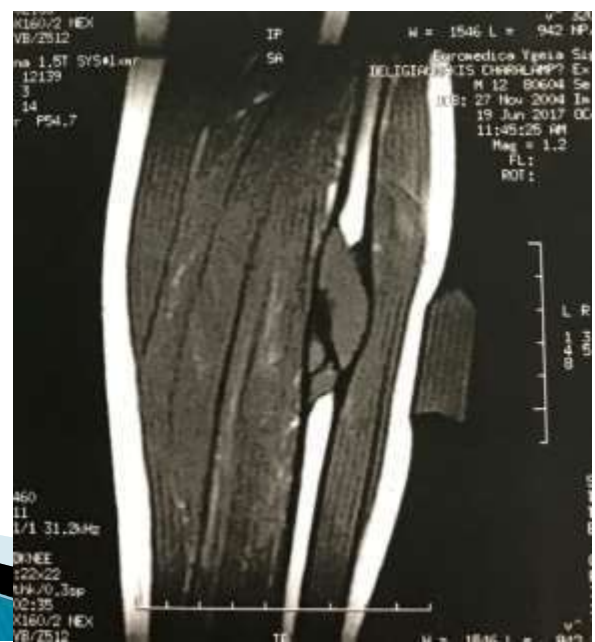


Fibula bone cyst deligian natural history





Fibula bone cyst deligian

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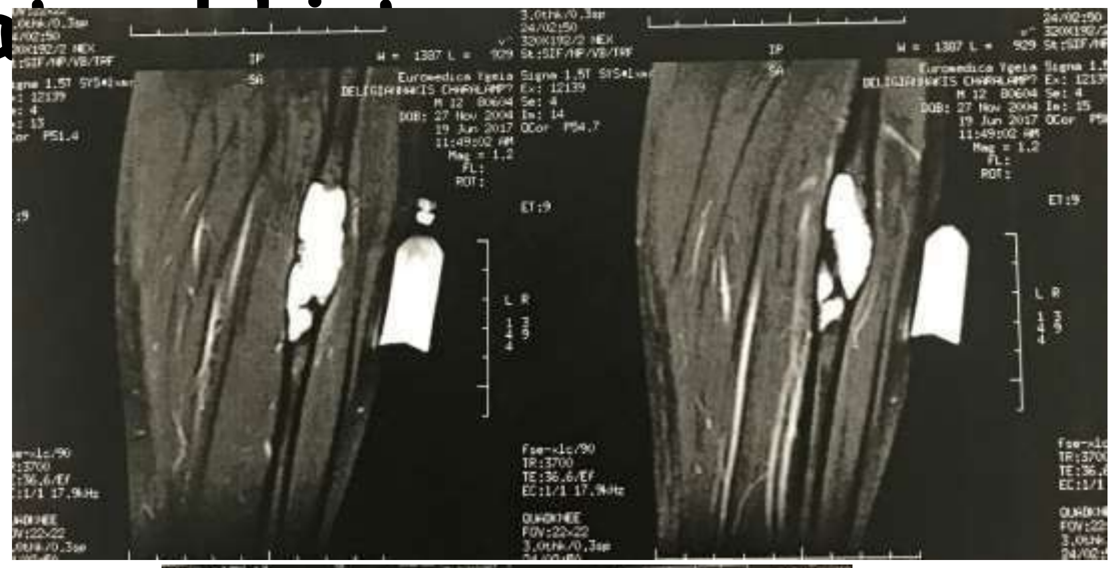
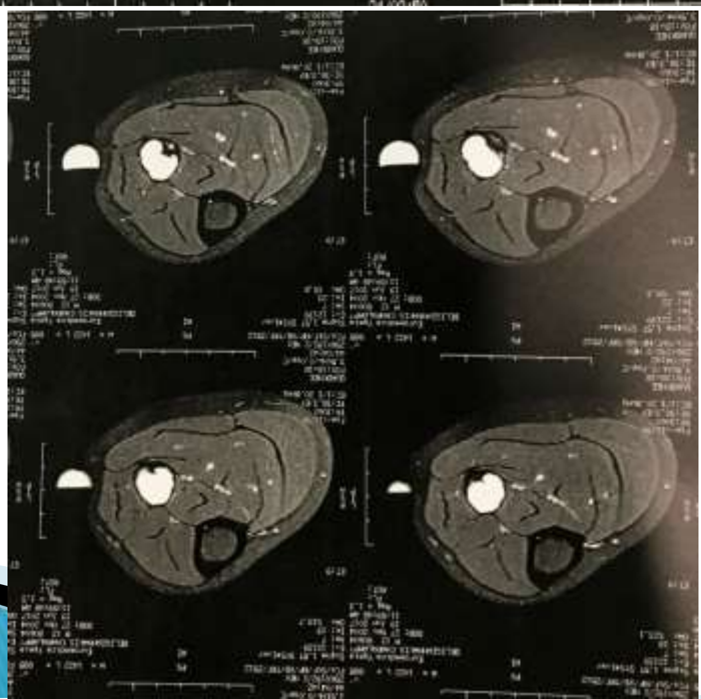
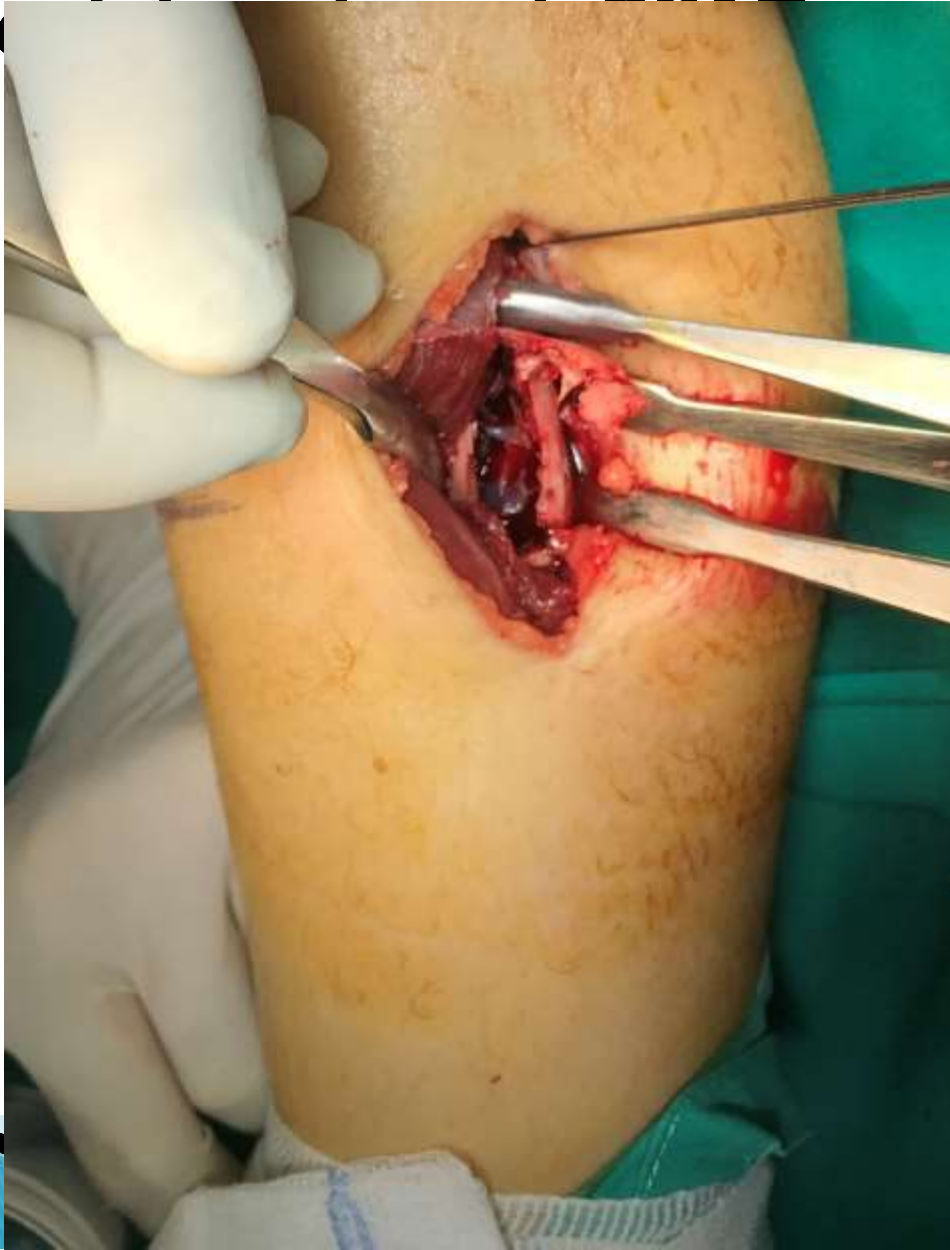


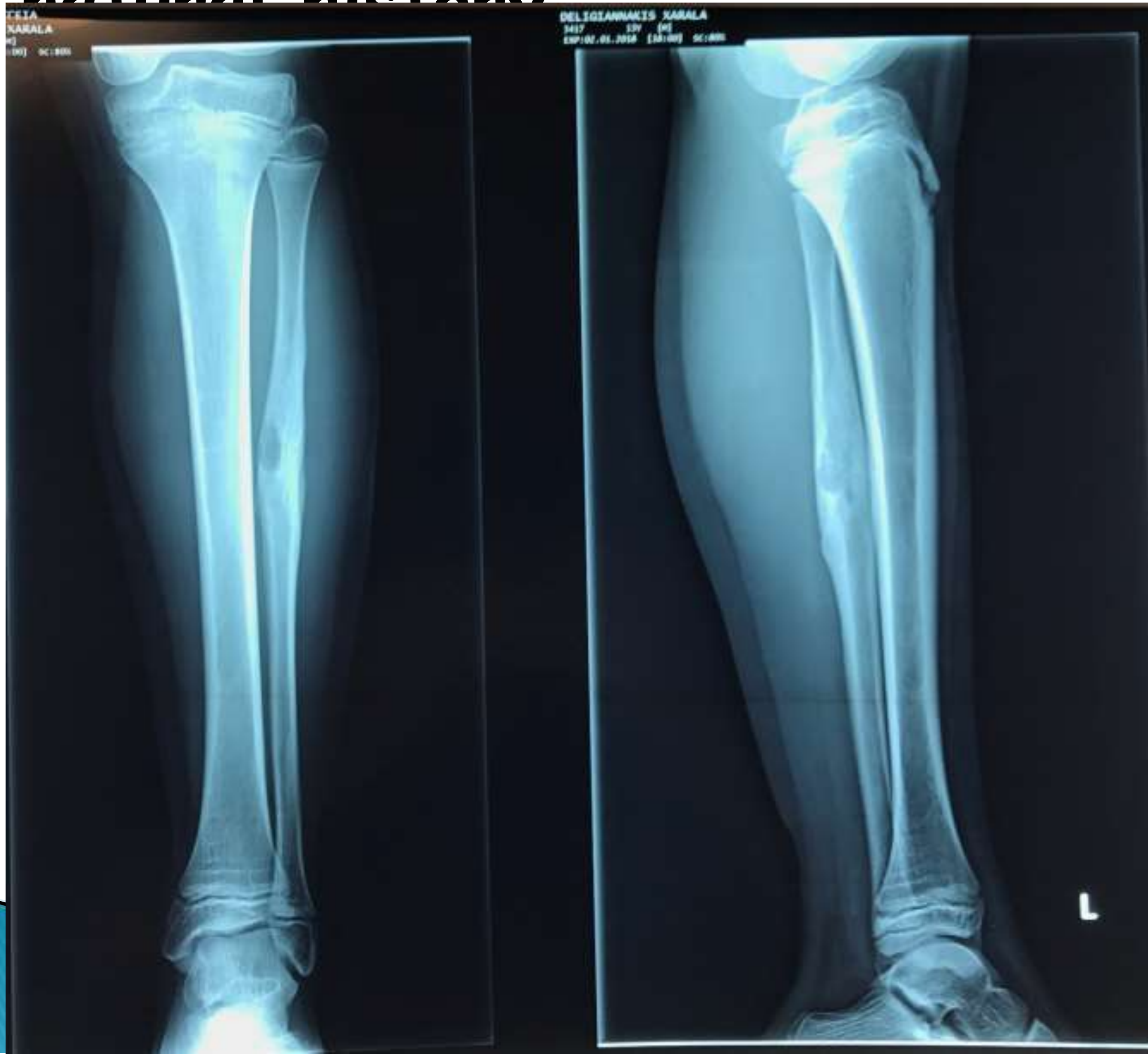


Fibula bone cyst deligian

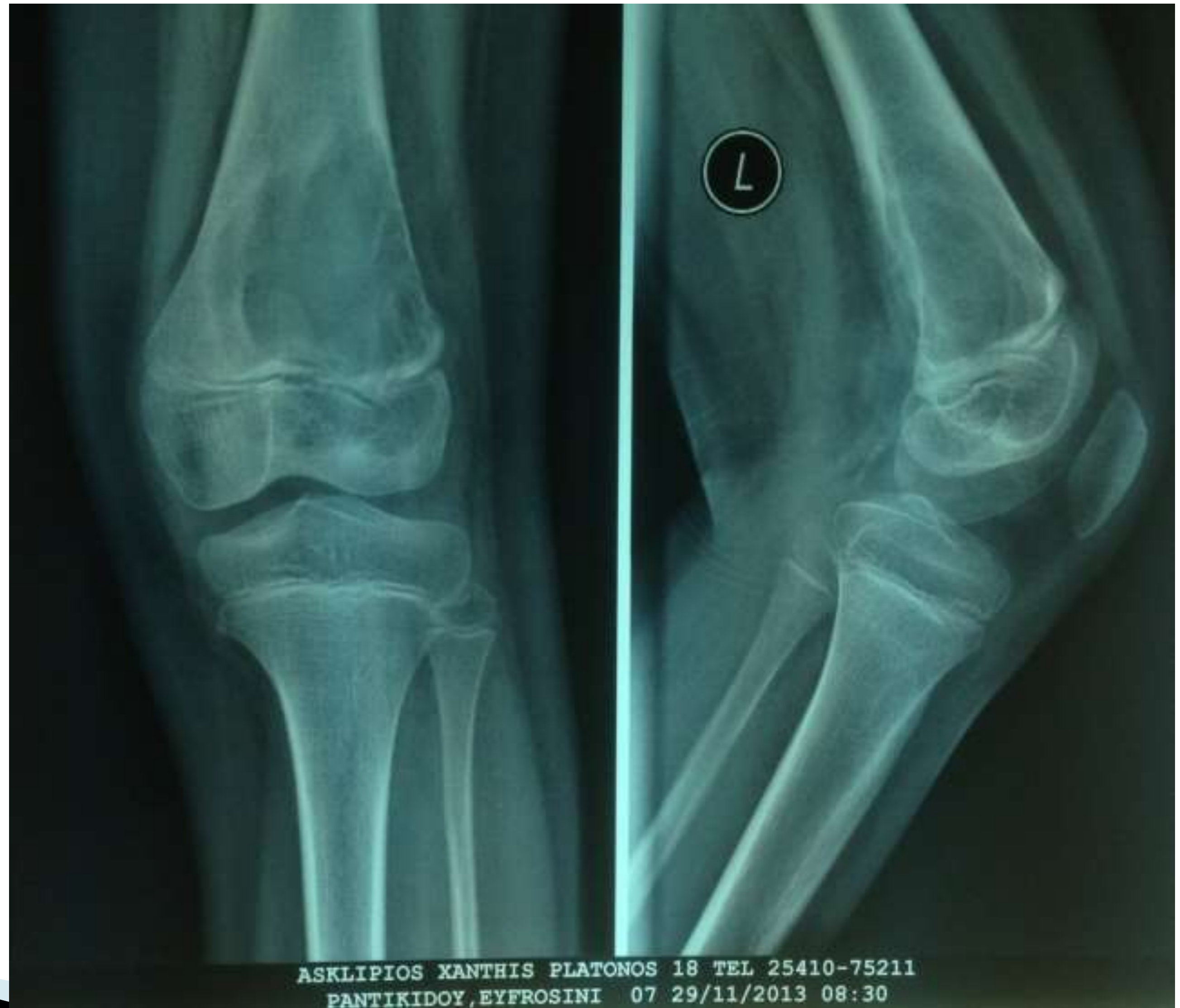
Surgi



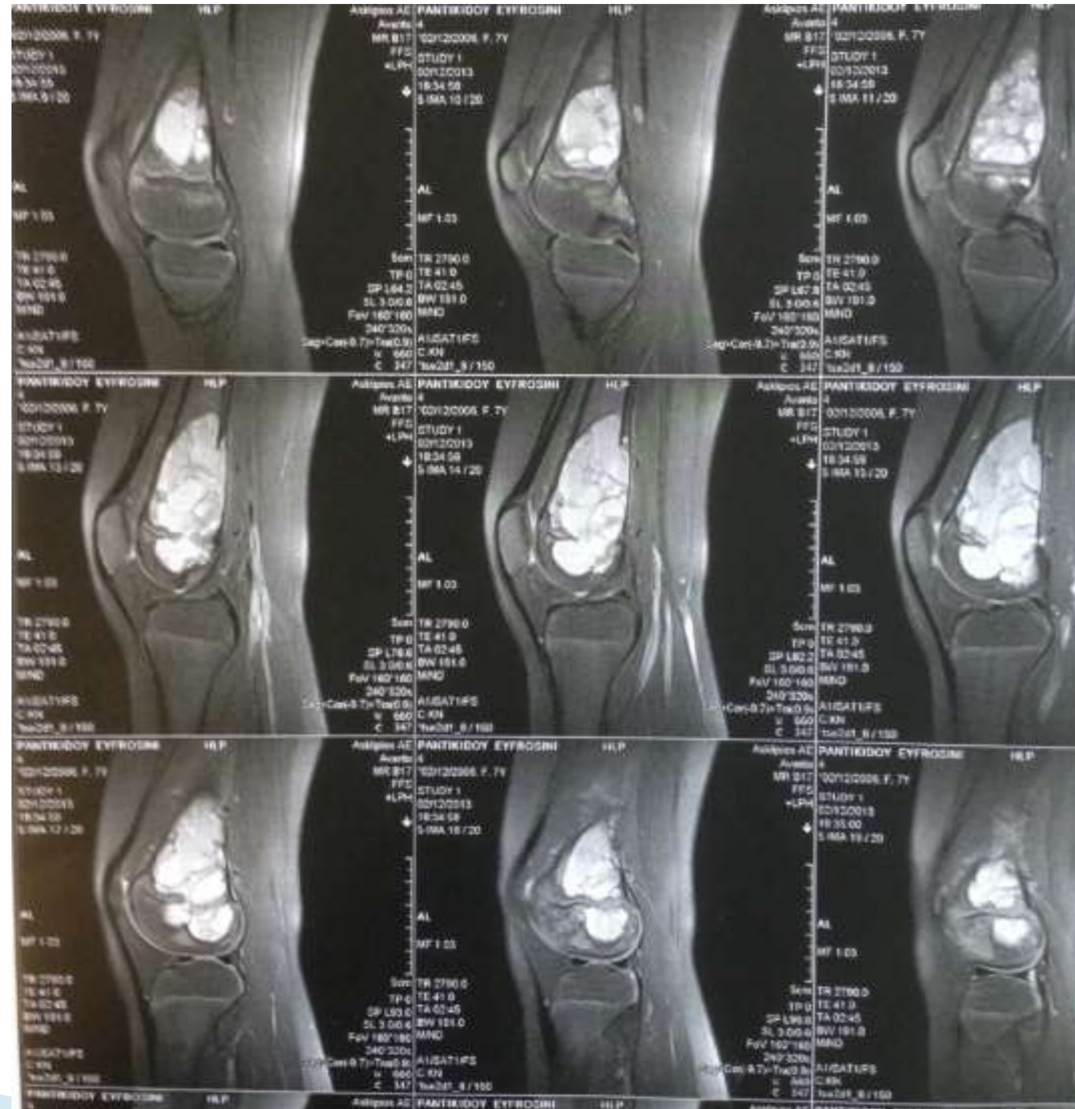
Fibula bone cyst deligian natural history



Αρχική ακτινολογική εικόνα



Μαγνητική τομογραφία



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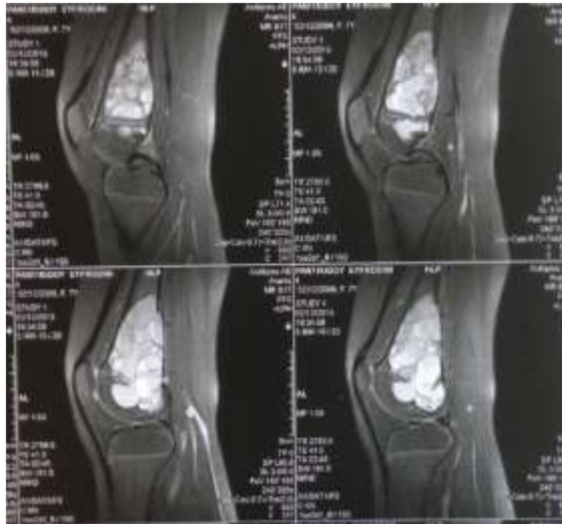

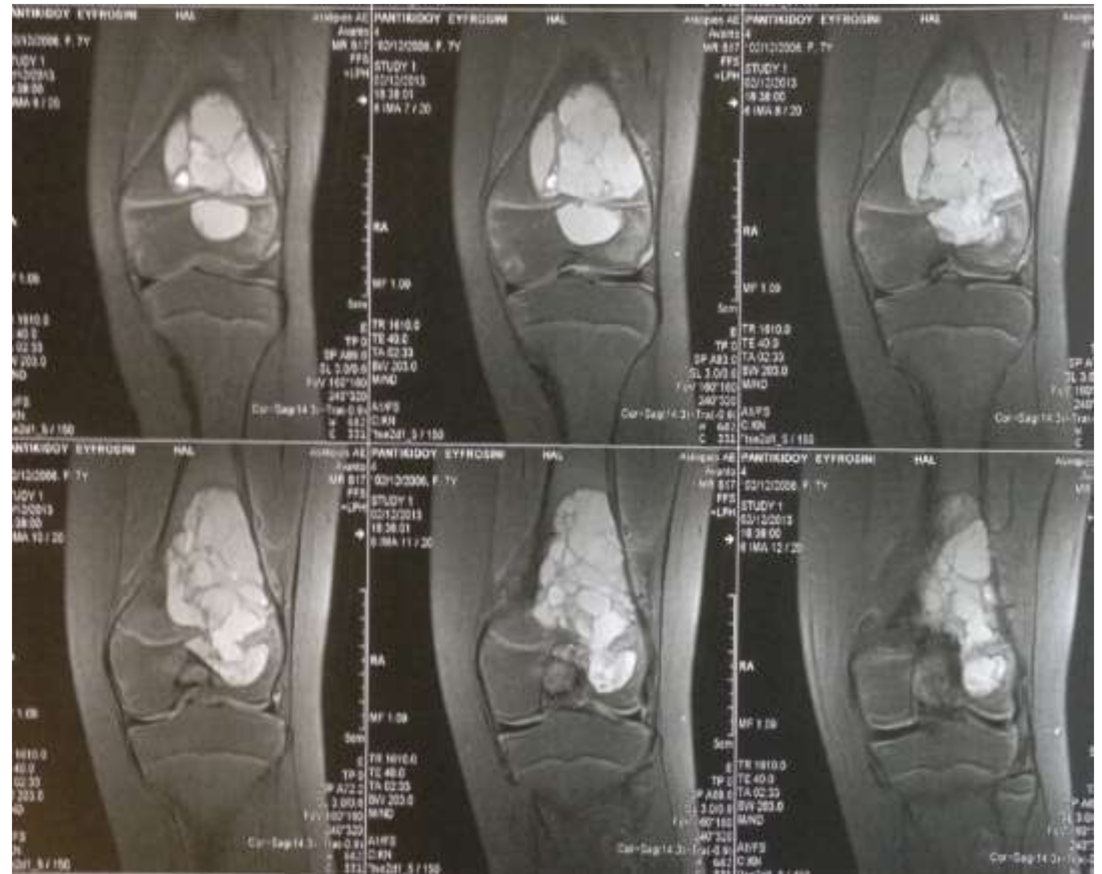

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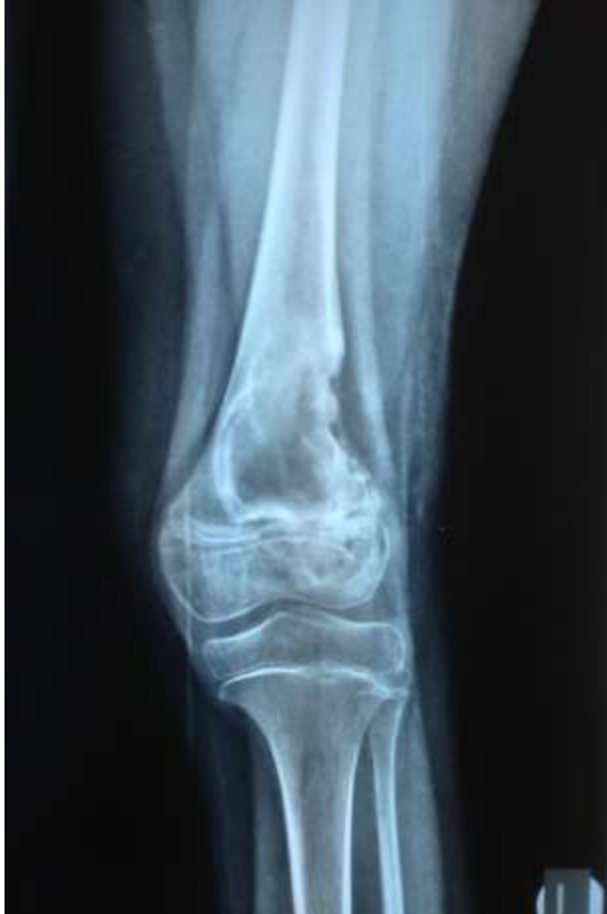

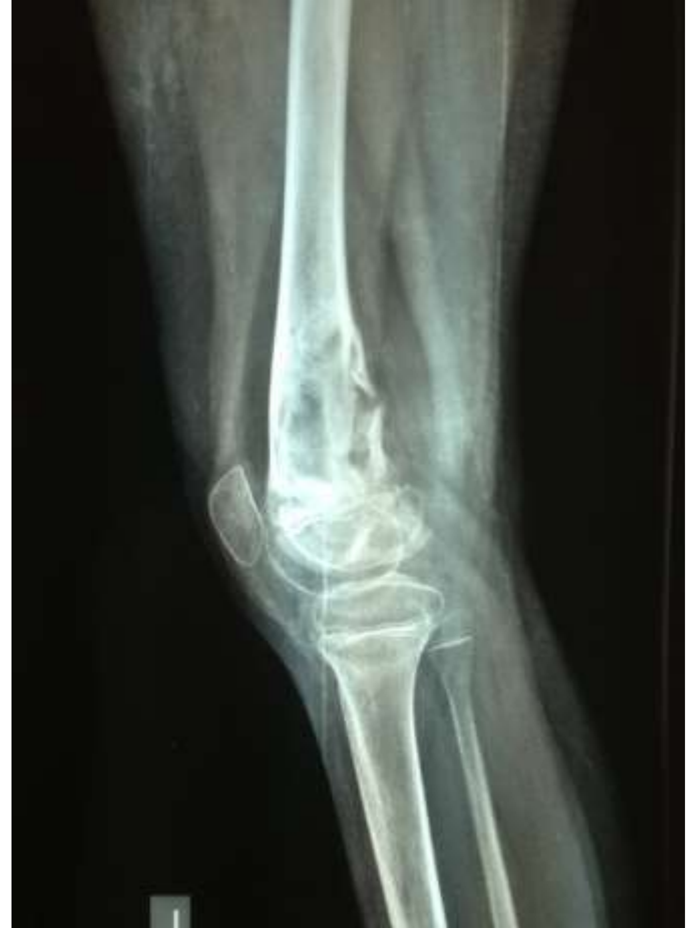

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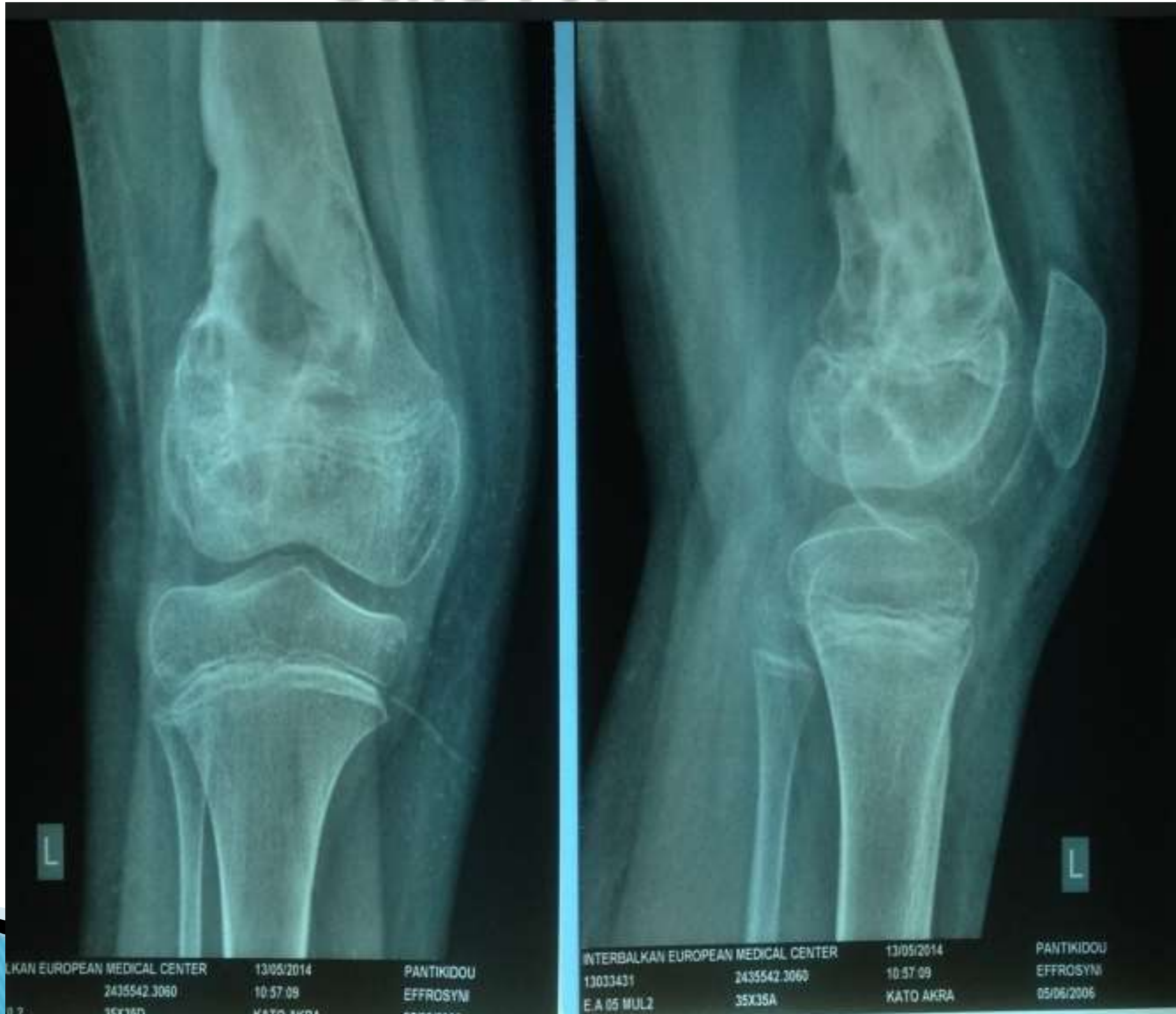

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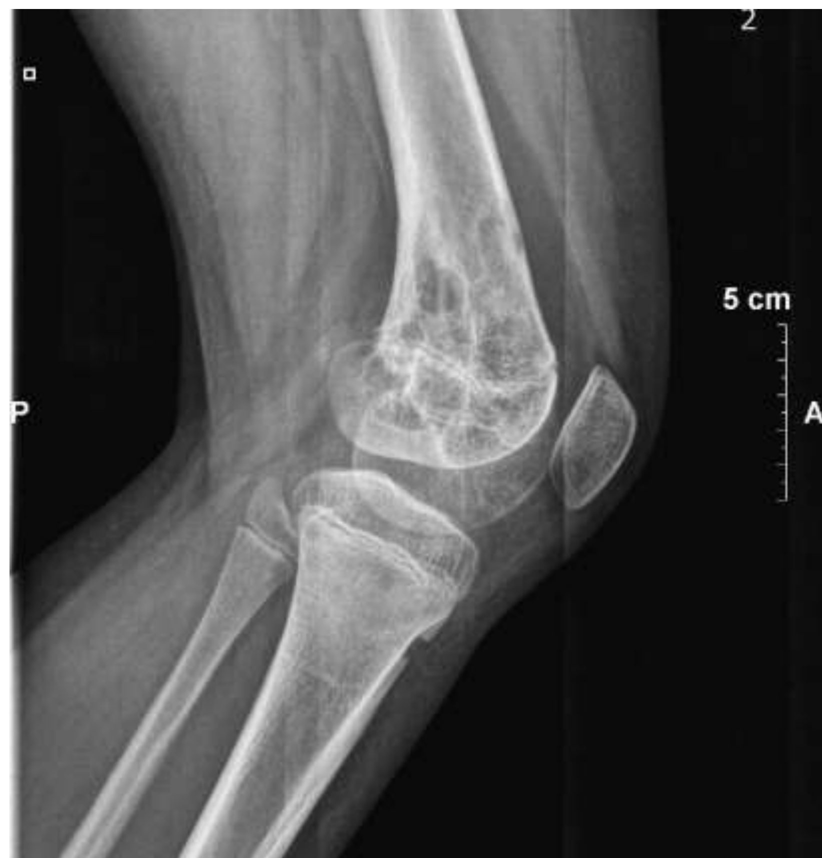

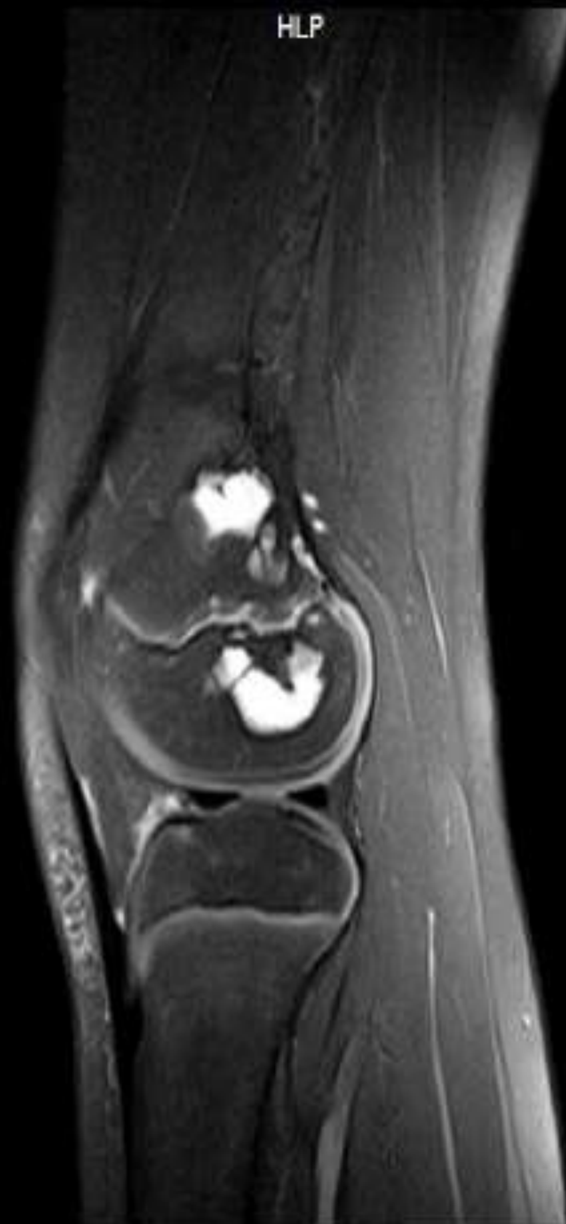

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15/12/2014
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Asklipios AE
Avanto
FFS
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TR 3000
SP L97.2
FoV 180*180
240*320s
Sag>Cor(-16.7)>Tra(1.4)
W: 624
C: 334

Orthop Rev (Pavia). 2015 Dec 28; 7(4): 6182.

Current Strategies for the Treatment of Aneurysmal Bone Cysts
Panagiotis Tsagozis and Otte Brosjö

- En block surgical excision
- Intralesional curettage with local adjuvant(phenol, cryotherapy, bone cement and high speed burr)
- Embolization
- Sclerotherapy
- Medical treatment biphosphonates denosumab

ΒΙΒΛΙΟΓΡΑΦΙΑ

- Juxtaphyseal aneurysmal bone cysts
Rizzo M, Dellaero DT, Harrelson JM, Scully SP.
Clin Orthop Relat Res. 1999 Jul;(364):205-12.

- Aneurysmal Bone Cysts Recur at Juxtaphyseal Locations in Skeletally Immature Patients
BPatrick P. Lin, MD, Christopher Brown, S, A. Kevin Raymond, MD, Michael T. Deavers, MD, and Alan W. Yasko, MD
Clin Orthop Relat Res. 2008 March; 466(3): 722–728.

- Juxtaepiphyseal aneurysmal bone cyst.
Capanna R, Springfield DS, Biagini R, Ruggieri P, Giunti A.
Skeletal Radiol. 1985;13(1):21-5.

- Aneurysmal bone cysts: do simple treatments work?
Reddy KI, Sinnaeve F, Gaston CL, Grimer RJ, Carter SR.
Clin Orthop Relat Res. 2014 Jun;472(6):1901-10.

ΒΙΒΛΙΟΓΡΑΦΙΑ

✓ Treatment of aneurysmal bone cysts with percutaneous sclerotherapy using polidocanol. A REVIEW OF 72 CASES WITH LONG-TERM FOLLOW-UP
S. Rastogi, M. K. Varshney, V.Trikha, S. A. Khan, B. Choudhury, R. Safaya
J Bone Joint Surg [Br] 2006;88-B:1212-16

✓ Primary Aneurysmal Bone Cyst of the Epiphysis
Gilbert Chan, Alexandre Arkader, Raymond Kleposki, and John P. Dormans
Clin Orthop Relat Res. 2010 April; 468(4): 1168–1172.

Juxtaphyseal aneurysmal bone cysts

- Rizzo M, Dellaero DT, Harrelson JM, Scully SP.
- Clin Orthop Relat Res. 1999 Jul;(364):205-12.

- 15 children
- 3-14 yrs old
- NONE had disruption of the physis
- **3 patients had recurrence**
- Based on this study, juxtaphyseal aneurysmal bone cysts **may be treated satisfactorily with intralesional surgery and bone grafting with expectation of normal physeal growth**.

Aneurysmal Bone Cysts Recur at Juxtaphyseal Locations in Skeletally Immature Patients

- Patrick P. Lin, MD, [1] Christopher Brown, BS,[2] A. Kevin Raymond, MD,[3] Michael T. Deavers, MD,[3] and Alan W. Yasko, MD
- Clin Orthop Relat Res. 2008 March; 466(3): 722–728.

- Of the 19 juxtaphyseal cysts directly adjacent to an open physis, **eight developed recurrence**. Of the five periarticular cysts, two developed recurrence. The data suggest the risk of recurrence is highest in pediatric patients with juxtaphyseal or periarticular aneurysmal bone cysts. **Meticulous treatment of these cysts is necessary, but we believe an overly aggressive approach that destroys the physis or articular cartilage is not warranted**. Preservation of these structures remains a high priority of treatment.

Treatment options

Clin Orthop Relat Res. 2014 Jun;472(6):1901-10.

Aneurysmal bone cysts: do simple treatments work?

Reddy KI[1], Sinnaeve F, Gaston CL, Grimer RJ, Carter SR.

Primary aneurysmal bone cysts (ABCs) are benign, expansile bone lesions commonly treated with aggressive curettage with or without adjuvants such as cryotherapy, methacrylate cement, or phenol. It has been reported that occasionally these lesions heal spontaneously or after a pathologic fracture, and we observed that some ABCs treated at our center healed after biopsy alone. Because of this, we introduced a novel biopsy technique we call "curopsy," which is a percutaneous limited curettage at the time of biopsy, obtaining the lining membrane from various quadrants of the cyst leading to consolidation (**curopsy = biopsy with intention to cure**).

Skeletal Radiol. 1985;13(1):21-5.

Juxtaepiphyseal aneurysmal bone cyst.

Capanna R, Springfield DS, Biagini R, Ruggieri P, Giunti A.

Nine cases of aneurysmal bone cyst arising in juxtaepiphyseal locations **with gross invasion** of the adjacent growth plate are reported. In five of these patients an abnormality of growth, due to premature fusion of the affected growth plate, ultimately developed. Treatment of these lesions should attempt to avoid this complication, which appears to be more common than has been appreciated in the past**. These nine cases represent 23% of 39 cases of aneurysmal bone cyst occurring in a long bone adjacent to an open epiphyseal plate.** This series was extrapolated from a total of 198 cases of aneurysmal bone cyst in the files of the Istituto Ortopedico Rizzoli, Bologna, Italy.

ΒΙΒΛΙΟΓΡΑΦΙΑ

Distal femoral aneurysmal bone cyst, crossing the open growth plate

Nikolaos A. LALIOTIS, Chrysanthos K. CHRYSANTHOU, Iordanis Petrakis, Panagiotis Konstantinidis

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BIB/

Original Research Paper | Medicine

DISTAL FEMORAL ANEURYSMAL BONE CYST, CROSSING THE OPEN GROWTH PLATE AND EXTENDING INTO THE EPIPHYSIS.

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ABSTRACT

KEYWORDS

Introduction

Case Report

Orthop Traumatol Surg Res. 2015 Feb;101(1 Suppl):S119-27.

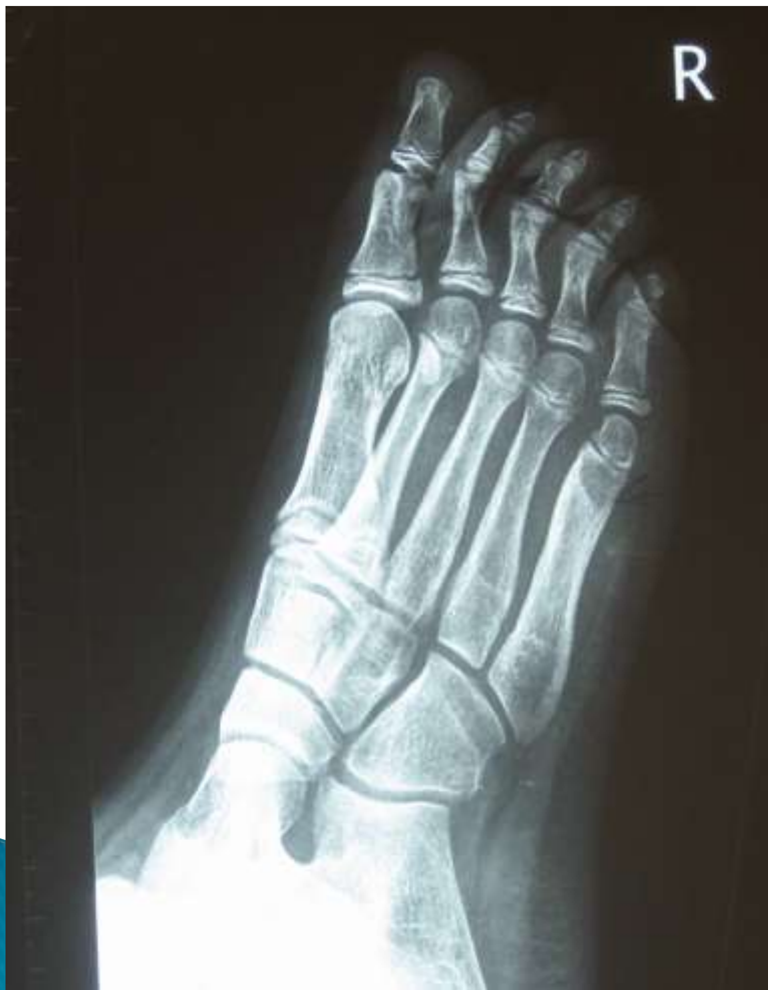
Bone cysts: unicameral and aneurysmal bone cyst.

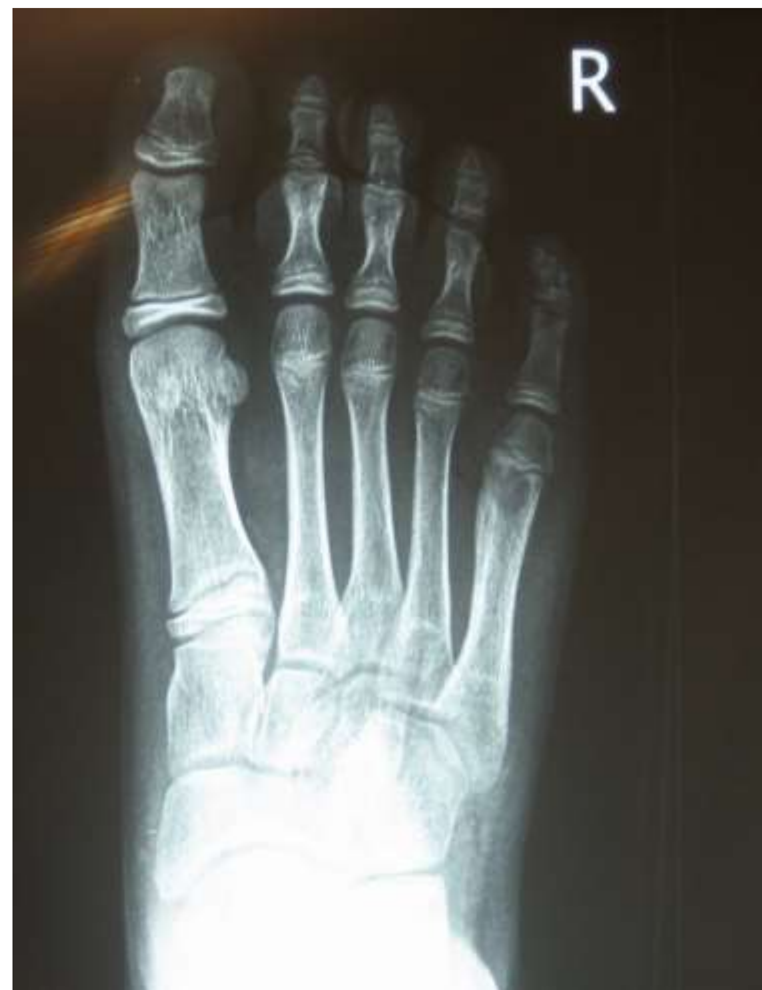
Mascard E[1], Gomez-Brouchet A[2], Lambot K[3].

Abstract

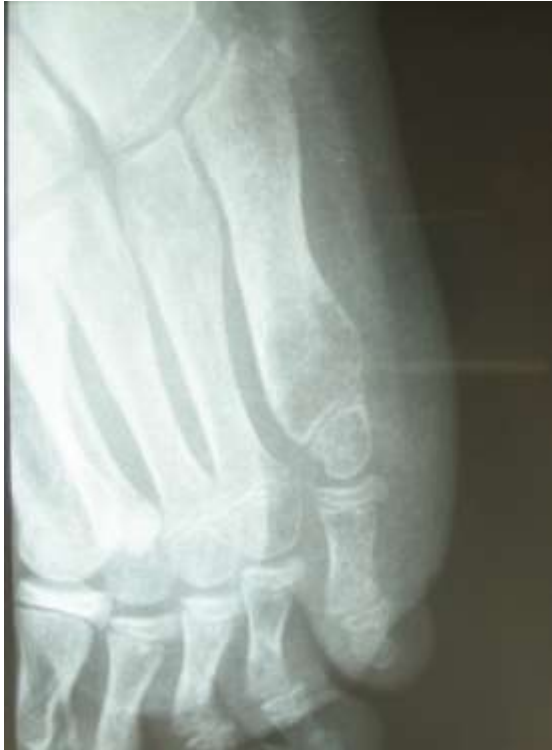
- Simple and aneurysmal bone cysts are benign lytic bone lesions, usually encountered in children and adolescents.
- **Simple bone cyst** is a cystic, fluid-filled lesion, which may be unicameral (UBC) or partially separated. UBC can involve all bones, but usually the long bone metaphysis and otherwise primarily the **proximal humerus and proximal femur.**
- The classic **aneurysmal bone cyst** (ABC) is an expansive and hemorrhagic tumor, usually showing characteristic translocation. About 30% of ABCs are secondary, without translocation; they occur in reaction to another, usually benign, bone lesion. ABCs are metaphyseal, excentric, bulging, fluid-filled and multicameral, and may develop in all bones of the skeleton. On MRI, the fluid level is evocative. It is mandatory to distinguish ABC from UBC, as prognosis and treatment are different. UBCs resolve spontaneously between adolescence and adulthood; the main concern is the risk of pathologic fracture. Treatment in non-threatening forms consists in intracystic injection of methylprednisolone. When there is a risk of fracture, especially of the femoral neck, surgery with curettage, filling with bone substitute or graft and osteosynthesis may be required. ABCs are potentially more aggressive, with a risk of bone destruction. **Diagnosis must systematically be confirmed by biopsy, identifying soft-tissue parts, as telangiectatic sarcoma can mimic ABC**.
- **Intra-lesional sclerotherapy with alcohol is an effective treatment**. In spinal ABC and in aggressive lesions with a risk of fracture, surgical treatment should be preferred, possibly after preoperative embolization. The risk of malignant transformation is very low, except in case of radiation therapy.

Αρχική ακτινολογική εικόνα





Επιδείνωση σε 1 μήνα



Επιδείνωση σε 1 μήνα CT

<u>ΜΑΓΝΗΤΙΚΗ ΚΑΙ ΑΞΟΝΙΚΗ ΤΟΜΟΓΡΑΦΙΑ ΑΚΡΟΥ ΠΟΔΟΣ</u>

Το περιφερικό τμήμα του 5ου μεταταρσίου του δεξιού άκρου ποδός απεικονίζεται διευρυσμένο με λυτική βλάβη και διάσπαση του φλοιού ως και παθολογικό σήμα εντός αυτού (υψηλό σήμα στις T2 εικόνες. χαμηλό στις T1 εικόνες).
Επίσης παρατηρείται πάχυνση των πέριξ μαλακών μορίων.
Μετά την έγχυση παραμαγνητικής ουσίας παρατηρείται εμπλουτισμός τόσο του αυλού του μεταταρσίου όσο και των πέριξ μαλακών μορίων.
Τα ως άνω ευρήματα θα μπορούσαν να αποδοθούν σε εξεργασία μάλλον καλοήθους αιτιολογίας ή low grade tumor (γιγαντοκυτταρικός όγκος, χονδροβλάστωμα; κύστη;).
Συνιστάται λήψη βιοψίας.

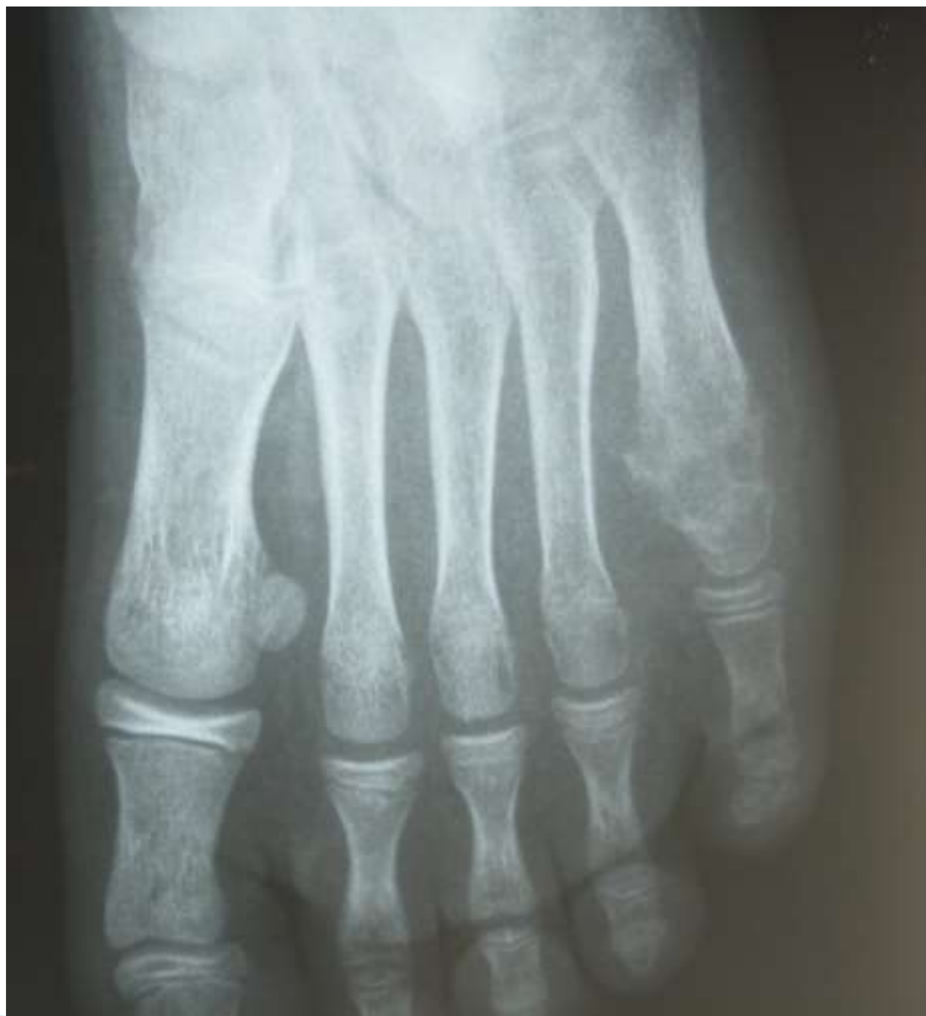
Κυστική διόγκωση κεφαλής 5ου μεταταρσίου

- Αιματολογικός έλεγχος φυσιολογικός
- Διαφορική διάγνωση
- Λοίμωξη
- Κύστη (μονήρης – ανευρυσματική)
- H K
- Ewing
- Λέμφωμα

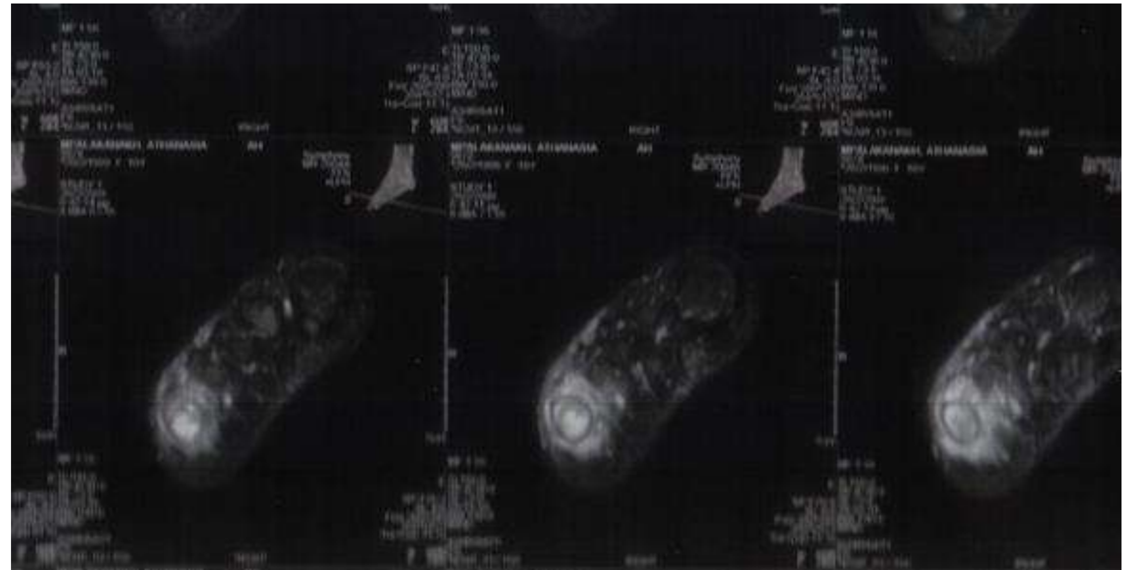
Κυστική διόγκωση κεφαλής 5ου μεταταρσίου

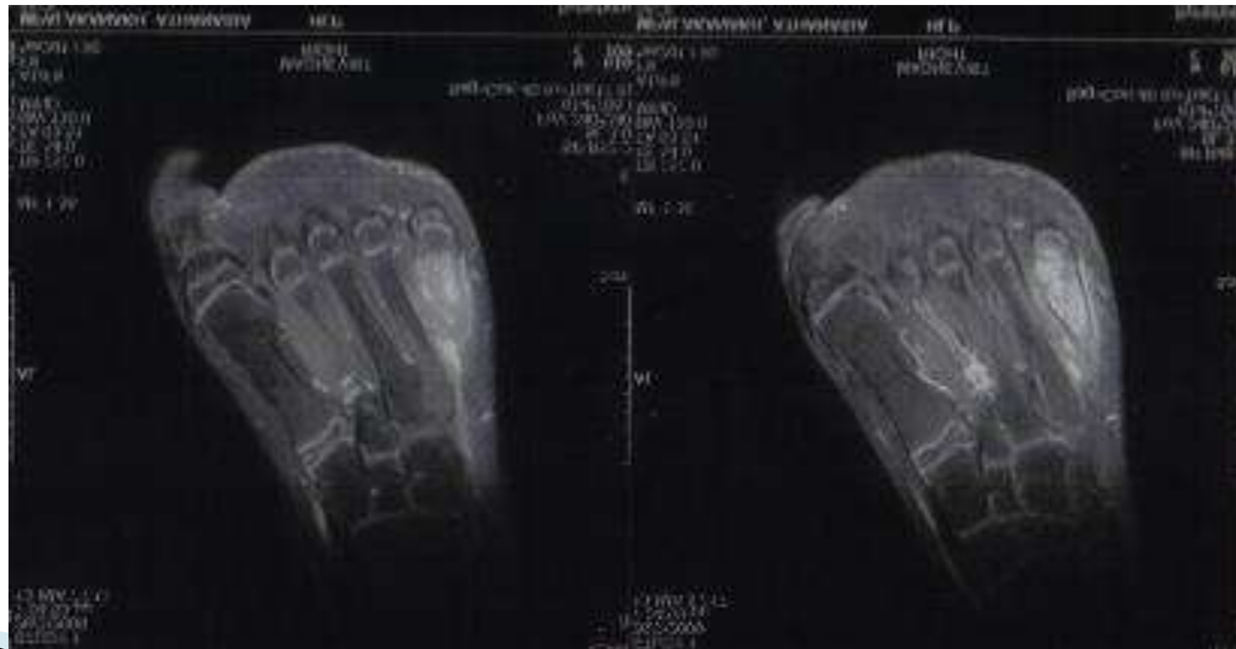
- Κλειστή βιοψία   ΠΙΘΑΝΗ ABC
- καθαρισμός της περιοχής
- Ανευρυσματική κύστη οστών

1 η υποτροπή



1 η υποτροπή MRI





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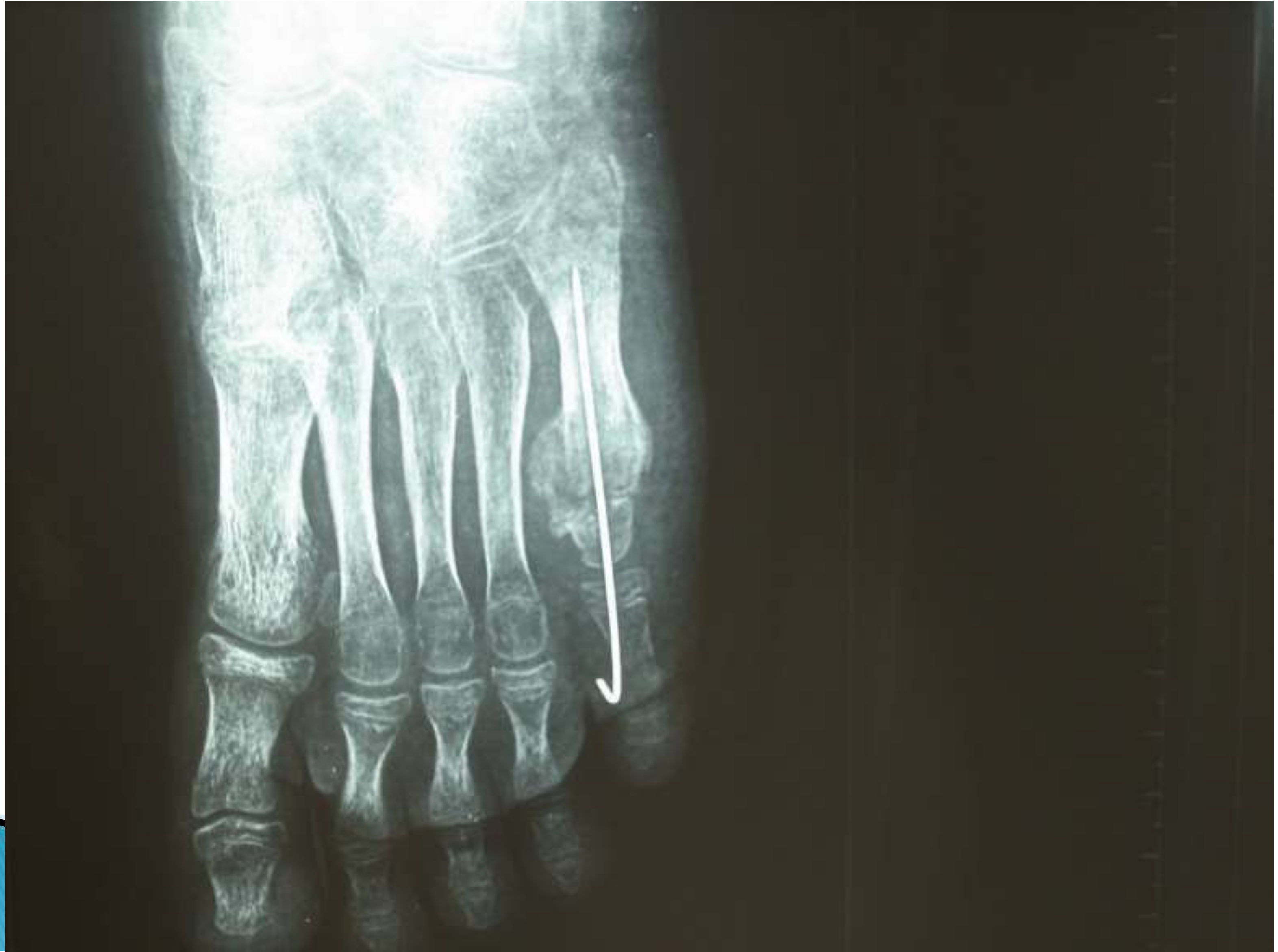
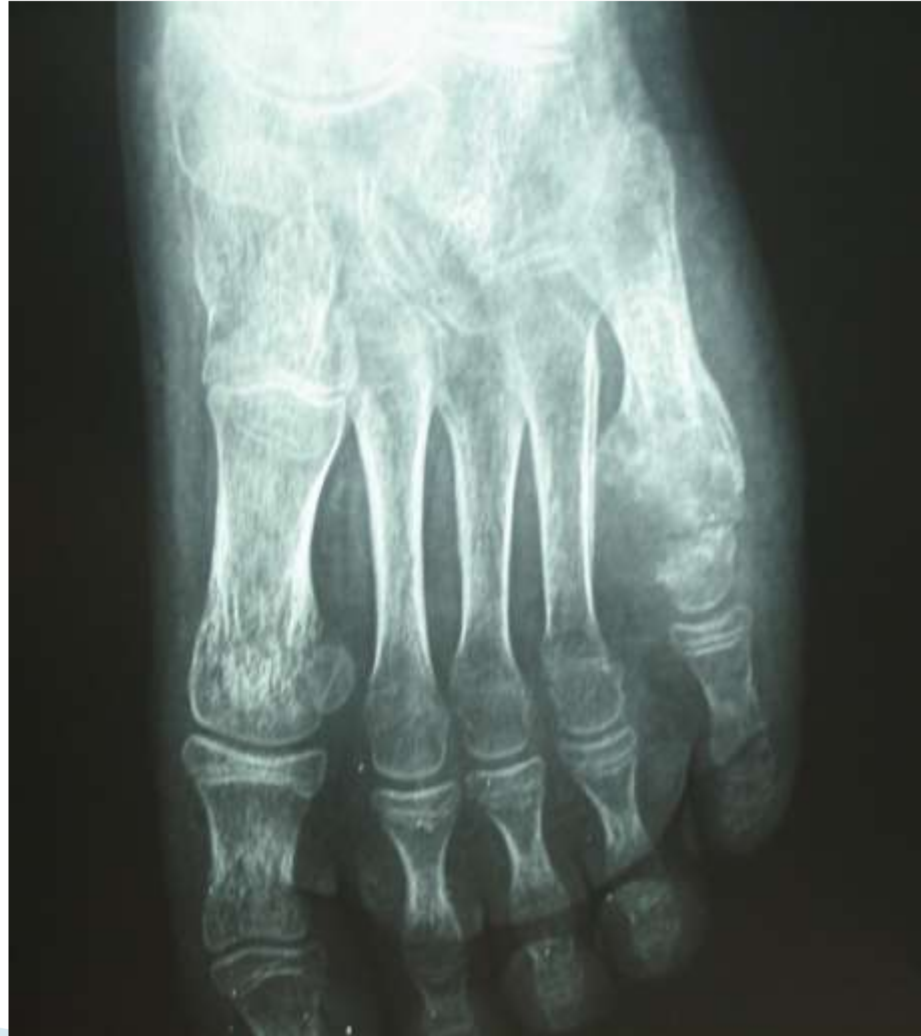
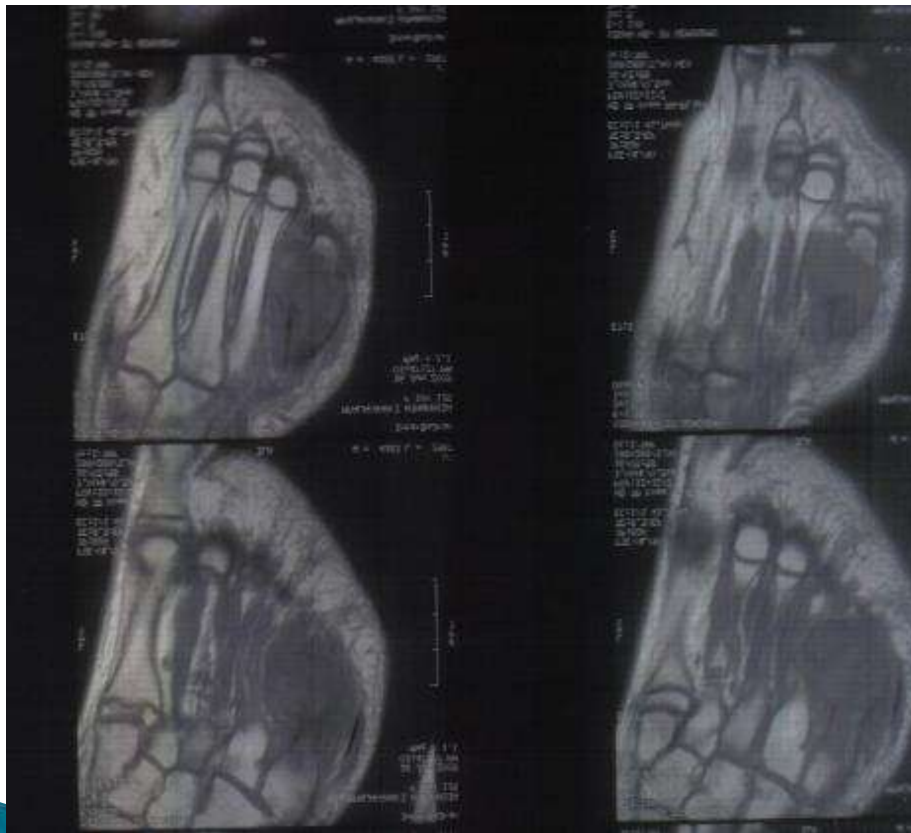


2η χειρουργική επέμβαση Πορεία της ασθενούς



2η χειρουργική επέμβαση Πορεία της ασθενούς, συνέχεια 4 μήνες MRI



ΜΑΓΝΗΤΙΚΗ ΤΟΜΟΓΡΑΦΙΑ ΑΚΡΟΥ ΠΟΔΟΣ

Επανελέγχεται η γνωστή εξεργασία του 5ου μεταταρσίου (ανευρυσματική κύστη).

Η ως άνω βλάβη προκαλεί διεύρυνση του αυλού , διασπαση του φλοιου και επέκταση στα πέριξ μαλακά μόρια.

Η μέγιστη εγκάρσια διάμετρος είναι 3cm, εσωτερικά εμφανίζει ανομοιογένεια με αιμορραγικα στοιχεία και παρουσία υγρουγρικών επίπεδων.

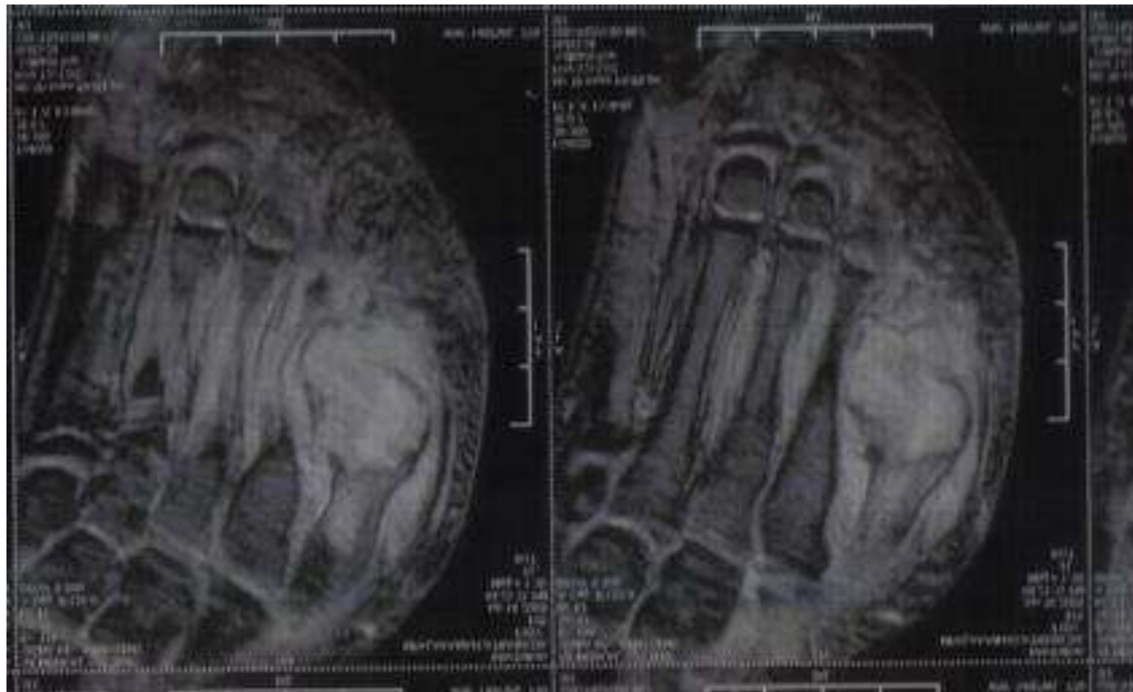
Σε μήκος η βλάβη καταλαμβάνει το μεγαλύτερο τμημα του μεταταρσίου χωρίς όμως επέκταση στις επιφύσεις του οστού.

Σημαντικό οίδημα των πέριξ μαλακών μοριων.

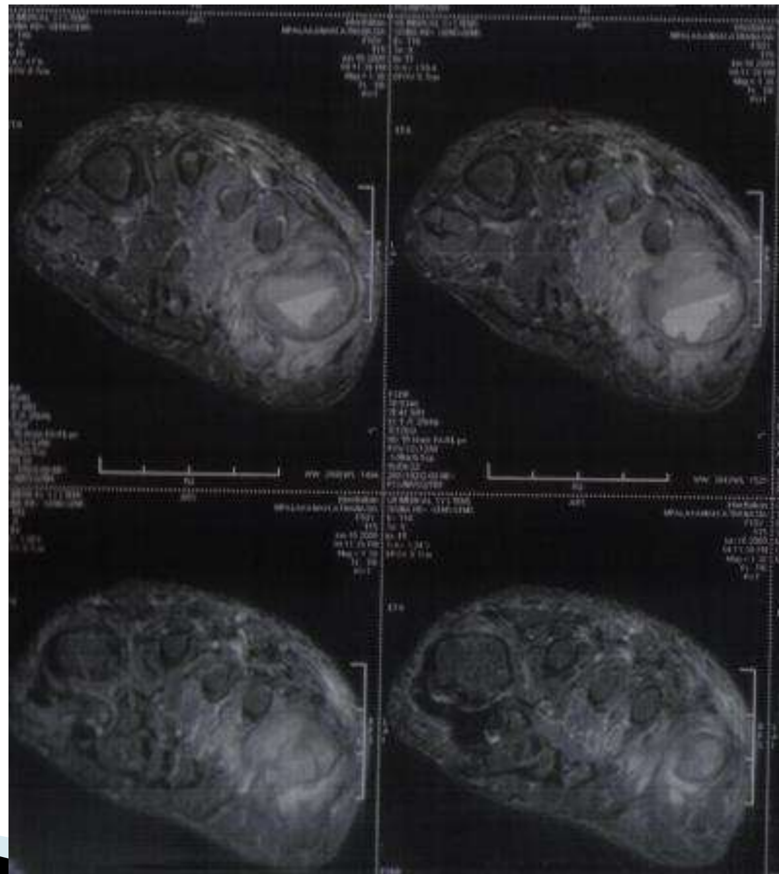
Περιορισμένο οίδημα παρατηρειται στα οστά του ταρσού και στην κεφαλή του 3ου μεταταρσίου

Συγκριτικά με την προηγούμενη εξέταση (26/02/09; παρατηρείται αύξηση του μεγέθους της βλάβης και επέκταση στα μαλακά μόρια.

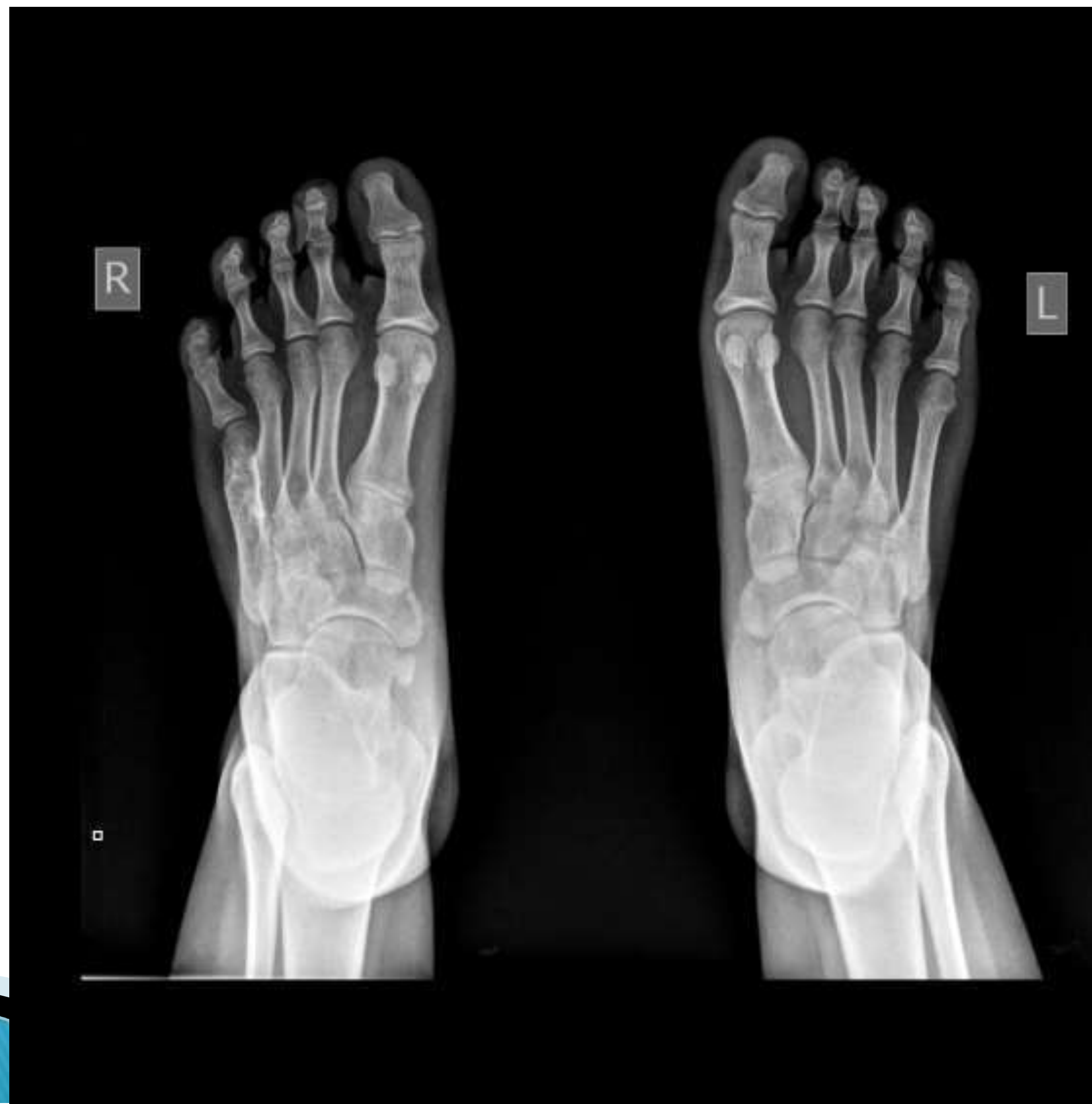
2η χειρουργική επέμβαση Πορεία της ασθενούς, συνέχεια 4 μήνες MRI



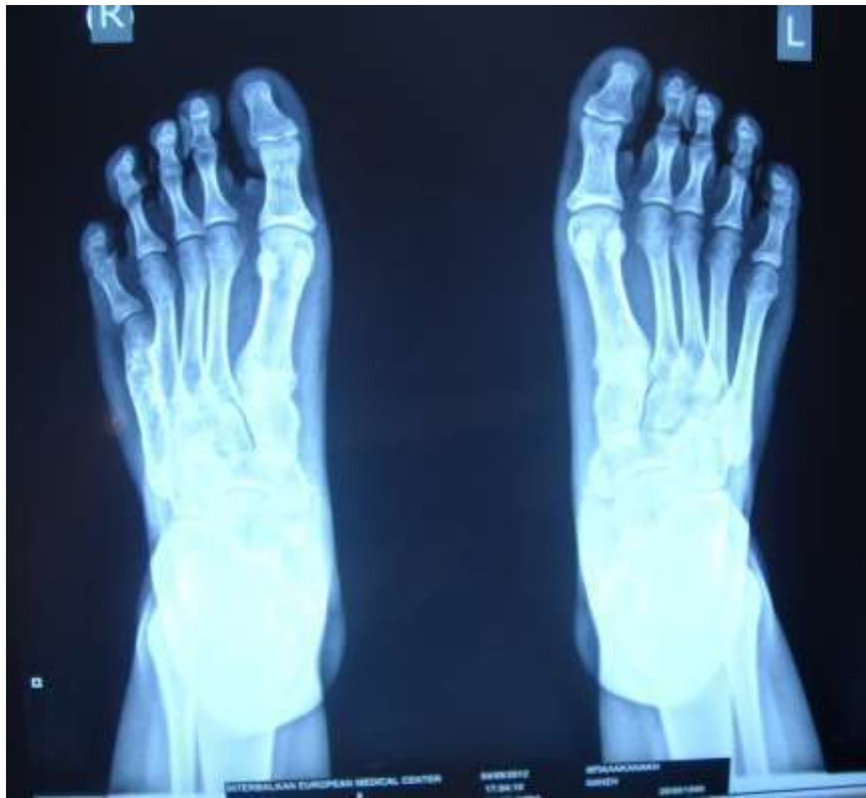
$2^{η}$ χειρουργική επέμβαση Πορεία της ασθενούς, συνέχεια 4 μήνες MRI plan for treatment?

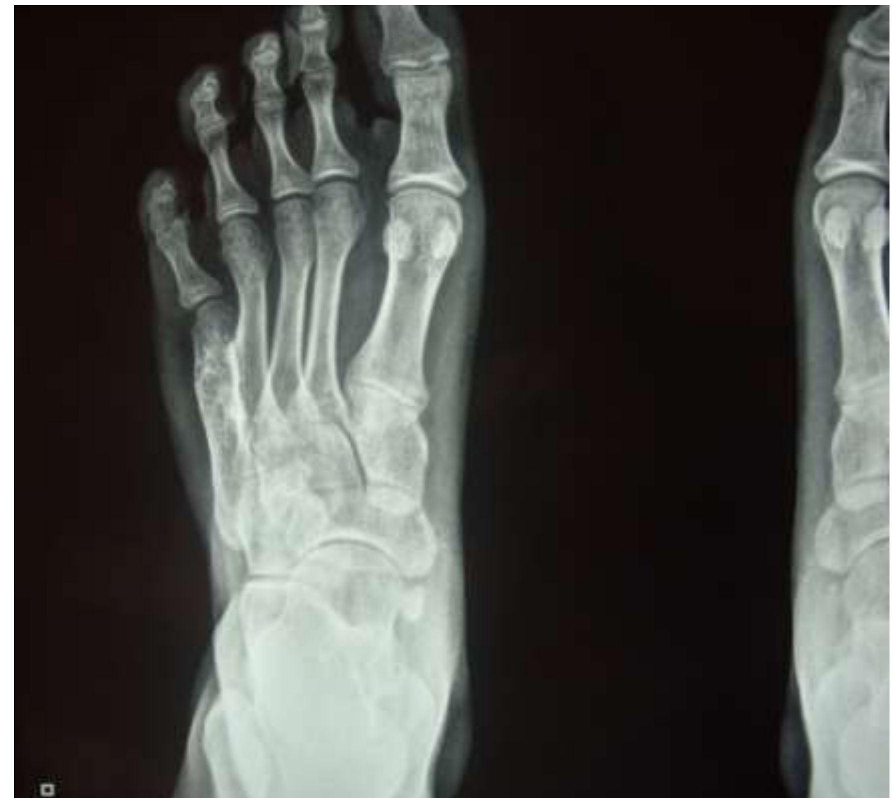


3η χειρουργική επέμβαση αποτέλεσμα



Τελικό αποτέλεσμα 4 έτη μετά





- Eur Spine J. 2018 Feb 22. doi: 10.1007/s00586-018-5528-x. [Epub ahead of print]
- **Denosumab: a potential treatment option for aneurysmal bone cyst of the atlas.**
- Patel RS[1], Dhamne CA[2], Gopinathan A[3], Kumar N[1], Kumar N[4].
- Author information
- Abstract
- PURPOSE:
- Aneurysmal bone cysts (ABCs) of spine are conventionally treated with en-bloc resection or intralesional excision/curettage and reconstruction or filling of defects with bone cement. For the treatment of upper cervical ABCs, en-bloc resections are often not desirable considering the risk/benefit ratio while the risk of recurrence after intralesional excision is high. Hence, alternative management options are often necessary. We describe our clinical experience with one such treatment alternative-denosumab for the treatment of ABC of Atlas.
- METHODS AND RESULTS:
- We present a case of 16-year-old boy who presented with neck pain and restriction of neck movements. A large lytic lesion with multiple fluid-fluid interfaces involving vertebral arch of atlas was identified on further imaging. There was destruction of right lateral mass and the lesion was found encasing the right vertebral artery. Core needle biopsy confirmed the diagnosis of ABC. With no visible CT response after first session of intra-lesional injection of Calcitonin and Methylprednisolone, the patient was treated with denosumab (120 mg SC once-a-month) for a period of 12 months. His symptoms resolved within 7 months of onset of treatment and serial CT scans over 12-month treatment period showed complete ossification of the lesion. Further there was no evidence of recurrence at 12 months after completion of treatment.
- CONCLUSION:
- Our case report contributes to the accruing evidence on the effectiveness of denosumab for the treatment of spinal ABCs. However, long-term safety, risk of recurrence, optimal duration of treatment and consistency of denosumab are yet to be determined

- J Child Orthop. 2017 Dec 1;11(6):448-454. doi: 10.1302/1863-2548.11.170106.
- **Sclerotherapy using Surgiflo and alcohol: a new alternative for the treatment of aneurysmal bone cysts.**
- Ghanem I[1], Nicolas N[1], Rizkallah M[1], Slaba S[2].
- Author information
- **Abstract**
- **Purpose**:
- This study aims to review the results of sclerotherapy using Surgiflo in addition to alcohol in primary aneurysmal bone cysts (ABC).
- **Methods**:
- A total of **16 consecutive patients with histologically confirmed diagnosis of primary ABC were treated by percutaneous Surgiflo and alcohol injection at our institution**. Clinical follow-up included the assessment of pain, swelling, limping and functional impairment. Radiological parameters included tumour volume, physis-cyst distance, thickness of cyst cortex, and presence of intracystic septations. Mean follow-up was 35,6 months (24-71 months). Treatment was considered successful when the cyst volume decreased by a minimum of 10%, the bone cortex became thicker, and the distance to physis increased.
- **Results**:
- Mean age at presentation was 9.5 years (5.16-13.84 years). All ABC's were primary and all patients underwent a single Surgiflo and alcohol session except for two (12.5%) who required a second session. All patients had a good clinical result at final follow-up**. Satisfactory cyst healing was achieved in 11 cases according to radiological parameters.** Tumour volume decreased from a mean of 122 cm^3 (111 to 133) before injection to 86 cm^3 (76 to 96) at last follow-up ($p < 0.01$). Physis-cyst distance increased from a mean of 1 cm (0.1 to 2) to 2.1 cm (0.5 to 4) at last follow-up ($p < 0.01$). Cortical thickness improved from 1 mm (0.5 to 1.5) to 2 mm (1 to 3.5) at last follow-up ($p < 0.01$).There were no treatment related complications**. Surgery was performed in one patient having a C3 vertebra ABC after developing quadriparesis due to tumour progression.**
- **Conclusion**:
- Sclerotherapy using Surgiflo and alcohol may be used as an efficient, safe and minimally invasive alternative for the treatment of primary ABCs

Pediatr Blood Cancer. 2018 Apr;65(4). .

Denosumab treatment in aneurysmal bone cyst: Evaluation of nine cases.

Kurucu N[1], Akyuz C[1], Ergen FB[2], Yalcin B[1], Kosemehmetoglu K[3], Ayvaz M[4], Varan A[1], Aydin B[1], Kutluk T[1].

- .
- BACKGROUND:
- Aneurysmal bone cyst (ABC) is a benign bone tumor. Curettage and bone grafting is the common treatment. Here, we retrospectively evaluate nine patients treated with denosumab.
- PROCEDURE:
- Nine patients with ABC, **mostly pelvic and vertebral, treated with denosumab** were analyzed retrospectively. A 70 mg/m^2 denosumab dose was used weekly in the first month, and then monthly. Clinical and radiological responses to treatment were evaluated.
- RESULTS:
- In all patients, clinical symptoms including pain and limping regressed completely within 3 months. Radiological evaluation revealed changes in lesion size and content. **In six patients, overall volume reduction in the range of 18-82% was detected.** Decreases in the size and number of cysts were detected in eight patients. In five patients, fat signal appeared on follow-up imaging. No major side effects were observed during treatment. Median follow-up time after treatment was 15 months. At 5 months, severe hypercalcemia was observed in two patients due to rebound increase in osteoclastic activity. **Subsequent to denosumab treatment, three patients underwent surgery** for clinical or radiological recurrence.
- CONCLUSIONS:
- Our results showed that denosumab provided a meaningful clinical and radiological improvement in ABC. It may be a treatment option, especially in spinal and pelvic tumors with potentially high surgical morbidity. However, late rebound hypercalcemia may restrict its use. Studies with more cases are required for routine use of denosumab in ABC

Acta Orthop Belg. 2016 Dec;82(4):723-729.

Treatment outcome in 60 children with pathological fractures of the humerus caused by juvenile or aneurysmal bone cysts.

Rapp M, Grauel F, Wessel LM, Illing P, Kaiser MM.

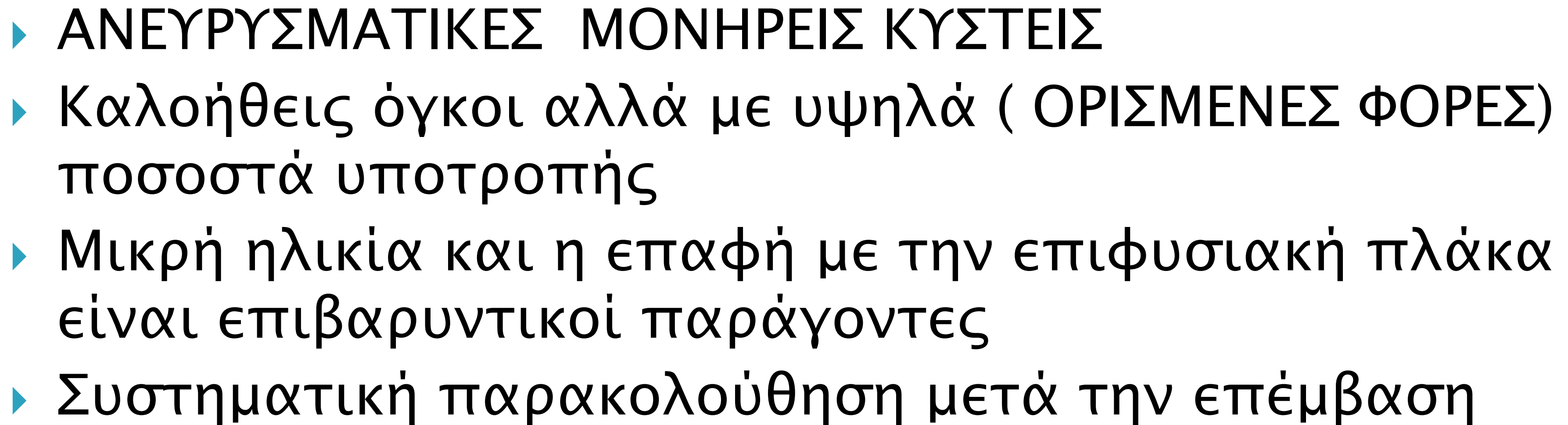
- **Abstract**
- The treatment of pathological fractures of the humerus caused by juvenile or aneurysmal bone cysts (JBC/ABC) should be a single approach with a high success rate and low complication rate. This study evaluates how day by day treatment concepts fulfil these aims. Children below 15 years of age with a pathological fracture of the humerus caused by a JBC or ABC between 01.01.2001 and 31.12.2010, were investigated by chart review in four major paediatric trauma centres. Age, gender, fracture localisation, X-ray findings, treatment and outcome - assessed by the Capanna classification (I to IV), were analysed. 60 children [41male, 19 female; mean age: 9 years (4-14 years)] with 43 JBC and 12 ABC were included as well as five cysts, who could not be classified definitively. **First treatment was non-operatively in 33 children. Of these 27 cysts did not improve; likewise the supportive installation of cortisone in six patients did not change the outcome.**
- **The first treatment consisted of elastic stable intramedullary in 13 children; up to three nail exchanges included. But only six of these reached (nearly) complete resolution** (I/II). Overall the combined mechanical and biological treatment with curettage, elastic stable intramedullary nailing, (artificial) bone substitute and in some cases growth factors was performed as the 1st-line treatment in nine patients and further in 2nd or 3rd-line treatments in 13 humeral cysts. More than half of these reached a complete or nearly complete resolution of the cyst (12x I, 5x II, 1x III, 4x IV). Major complications in all operated patients were six nails not removable and two children with upper extremities length differences. Healing rates are low for non-operative treatment, elastic stable intramedullary nailing alone and by using cortisone for cysts resolution in pathological fractures of the humerus. Data support a combined mechanical and biological treatment with curettage, elastic stable intramedullary nailing, (artificial) bone substitute and the use of growth factors

- Scand J Surg. 2018 Mar;107(1):76-81. doi: 10.1177/1457496917731185. Epub 2017 Sep 27.
- **Treatment of Aneurysmal Bone Cysts with Bioactive Glass in Children.**
- Syvänen J[1], Nietosvaara Y[2], Kohonen I[3], Koskimies E[1], Haara M[2], Korhonen J[4], Pajulo O[1], Helenius I[1].
- Author information
- Abstract
- BACKGROUND AND AIMS:
- Aneurysmal bone cysts represent about 1% of primary bone tumors. The standard treatment is curettage, followed by local adjuvant treatments and bone grafting. The problem is the high recurrence rate. The purpose of this study was to evaluate retrospectively the use of bioactive glass as a filling material in the treatment of aneurysmatic bone cysts in children.
- MATERIAL AND METHODS:
- A total of 18 consecutive children (mean 11.3 years at surgery; 10 males; **11 lower, 6 upper limb, 1 pelvis**; 15 with primary surgery) with histologically proven primary aneurysmal bone cysts operated with curettage and bioactive glass filling between 2008 and 2013 were evaluated after a mean follow-up of 2.0 years (range, 0.7-5.1 years).
- RESULTS:
- **Two (11%) patients showed evidence of aneurysmal bone cyst recurrence and both have been re-operated for recurrence**. Bone remodeling was noted in all patients with remaining growth and no growth plate disturbances were recorded. **Two patients needed allogeneic blood transfusion**. No intraoperative or postoperative complications were recorded.
- CONCLUSION:
- We conclude that bioactive glass is a suitable filling material for children with primary aneurysmal bone cyst. Bioactive glass did not affect bone growth and no side effects were reported.

- Orthopedics. 2017 Jul 1;40(4):204-210
- **Denosumab: Current Use in the Treatment of Primary Bone Tumors.**
- Savvidou OD, Bolia IK, Chloros GD, Papanastasiou J, Koutsouradis P, Papagelopoulos PJ.
- **Abstract**
- Denosumab, a human monoclonal antibody that inhibits bone resorption by binding on the receptor activator of the nuclear factor kappa-β ligand, has recently emerged as an additional option in the treatment of musculoskeletal osteolytic tumors. This article focuses on the recent literature regarding the effectiveness of denosumab in the management of giant cell tumor, multiple myeloma, aneurysmal bone cyst, and osteosarcoma. The mechanism of action of denosumab in the management of these tumors and the associated side effects are discussed in detail. [Orthopedics. 2017; 40(4):204-210.].

- Eur Rev Med Pharmacol Sci. 2016 Sep;20(17):3692-5.
- **Denosumab: non-surgical treatment option for selective arterial embolization resistant aneurysmal bone cyst of the spine and sacrum. Case report.**
- Germander R[1], Terzi S, Gasbarrini A, Boriani S.
- **Author information**
- 1Department of Oncological and Degenerative Spine Surgery, Istituto Ortopedico Rizzoli, Bologna, Italy. riccardoghermandi@gmail.com.
- **Abstract**
- **OBJECTIVE:**
- Aneurysmal Bone Cyst (ABC) is a cystic lesion of bone, occurring in 70% of cases as a primary lesion. Even if the metaphyseal region of long bones is more frequently involved, vertebral localization is not rare: ABC represents 15% of all primary spine and sacral tumours. Selective arterial embolization (SAE) represents the first treatment option for vertebral ABC. However, in few cases, multiple SAEs are not possible. The aim of this work is to report two cases of vertebral ABC unresponsive to SAE positively treated with Denosumab.
- **PATIENTS AND METHODS:**
- Two patients affected by ABC of the lumbar spine were treated by SAE without any response. Thus, the patients were submitted to an off-label treatment with Denosumab, following the same protocol already used in case of Giant Cell Tumour (GCT): 120 mg once a week for 4 weeks consecutively, then once every 40 days.
- **RESULTS:**
- In both cases, patients resulted to be pain-free after 11-13 Denosumab administrations and CT scan showed almost complete ossification of the lesions.
- **CONCLUSIONS:**
- The two cases reported here are not conclusive but they may support the project of a prospective study to confirm the effectiveness of Denosumab in ABC treatment as an alternative to SAE

ΣΥΜΠΕΡΑΣΜΑ



- ΑΝΕΥΡΥΣΜΑΤΙΚΕΣ ΜΟΝΗΡΕΙΣ ΚΥΣΤΕΙΣ
- Καλοήθεις όγκοι αλλά με υψηλά (ΟΡΙΣΜΕΝΕΣ ΦΟΡΕΣ) ποσοστά υποτροπής
- Μικρή ηλικία και η επαφή με την επιφυσιακή πλάκα είναι επιβαρυντικοί παράγοντες
- Συστηματική παρακολούθηση μετά την επέμβαση