

SERVIZIO SANITARIO REGIONALE  
EMILIA-ROMAGNA  
Azienda Ospedaliero - Universitaria di Ferrara

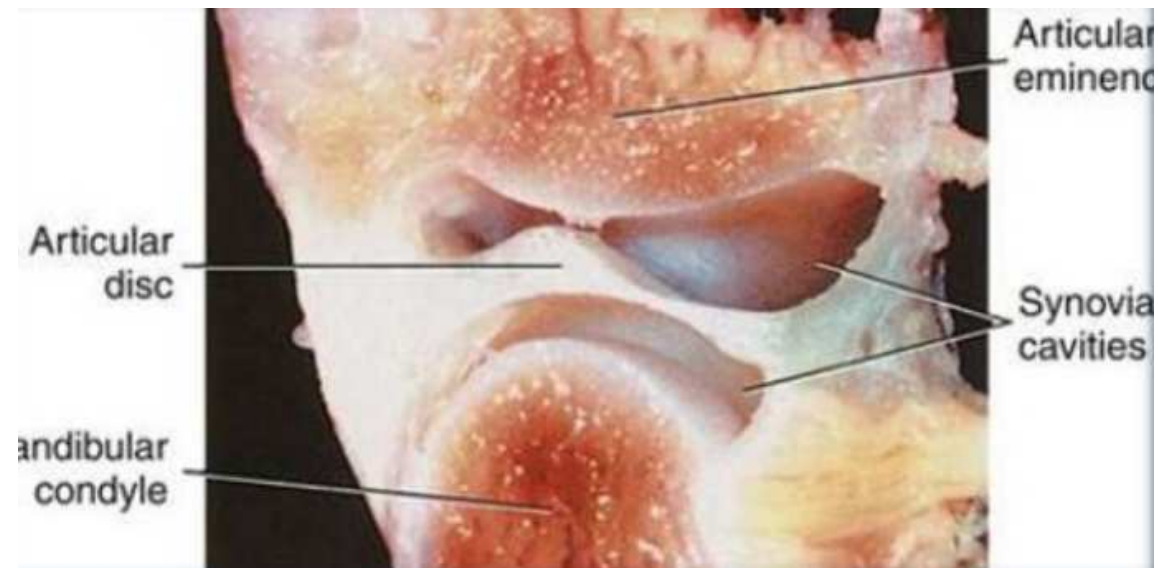


Università  
degli Studi  
di Ferrara

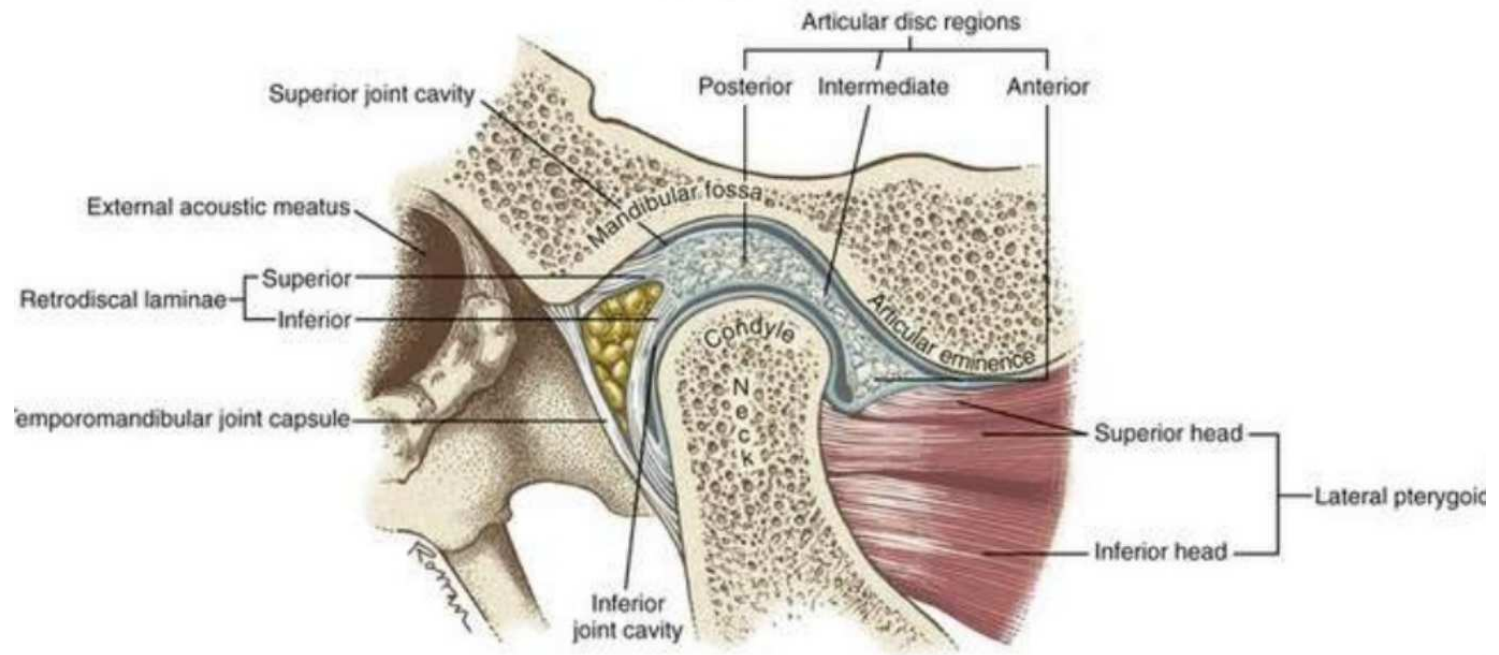
# Il ruolo della diagnostica per immagini nella patologia dell'articolazione temporo-mandibolare

**A. Saletti**

Dir. FF UOC Neuroradiologia AOIFE  
Dipartimento Interaziendale di Radiologia



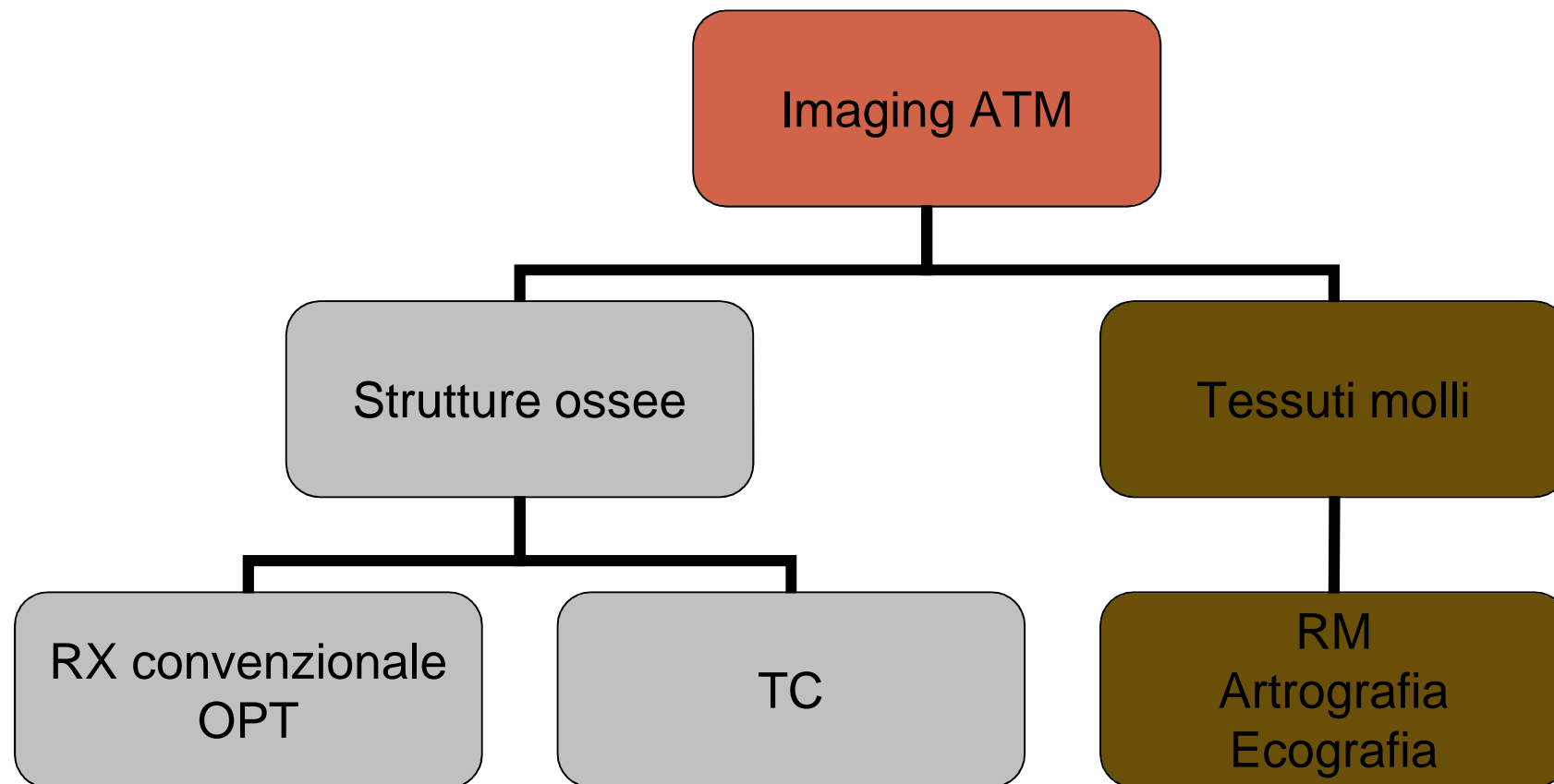
Lateral view



Il tipo di imaging dipende dall'indicazione clinica

Strutture ossee, tessuti molli o entrambi?

- Informazioni diagnostiche
- Costi procedura
- Dose radiante



# Imaging delle strutture ossee

Radiografia panoramica (OPT)

Radiografia convenzionale

- Proiezione transcraniale
- Proiezione transfaringea
- Proiezione transorbitale
- Proiezione submentovertice (Townes)

Tomografia convenzionale

Tomografia computerizzata (TC)

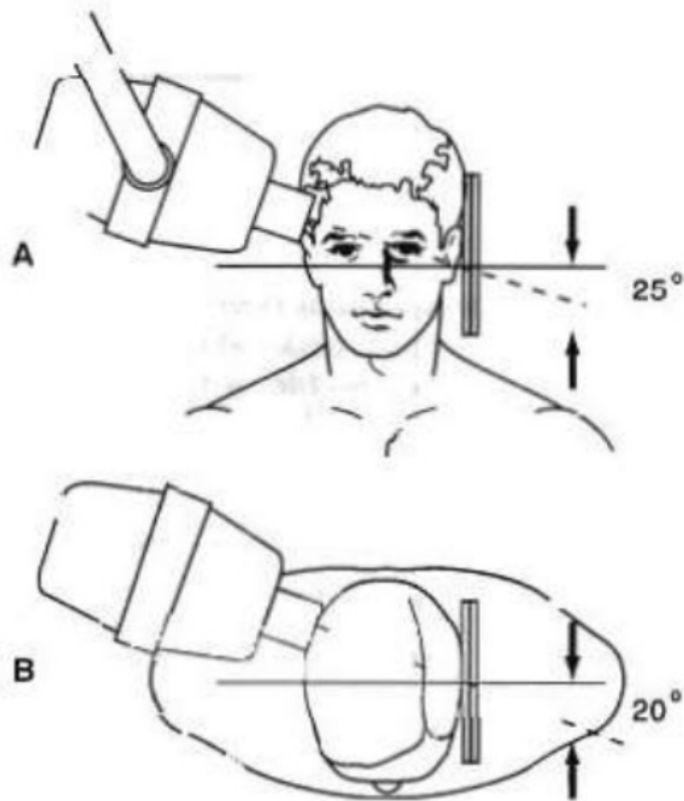
**OPT**



- Asimmetrie condilari
- Osteofiti
- Fratture
- Tumori
- Ampie erosioni ossee

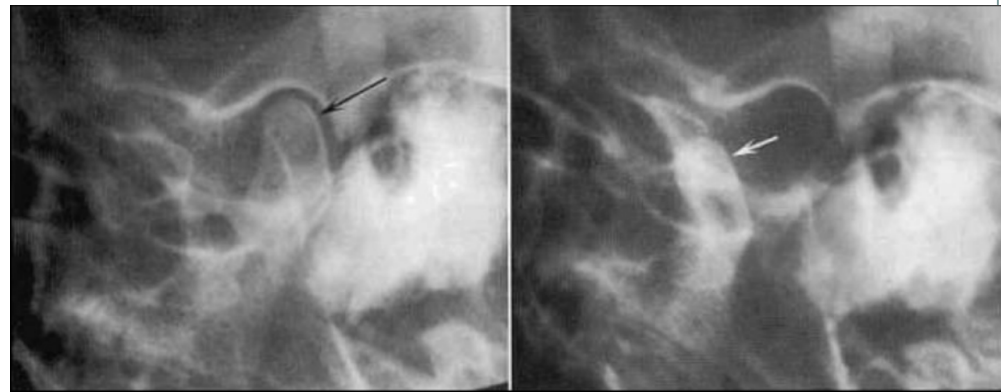
# Radiografia convenzionale

## 1. Proiezione transcraniale



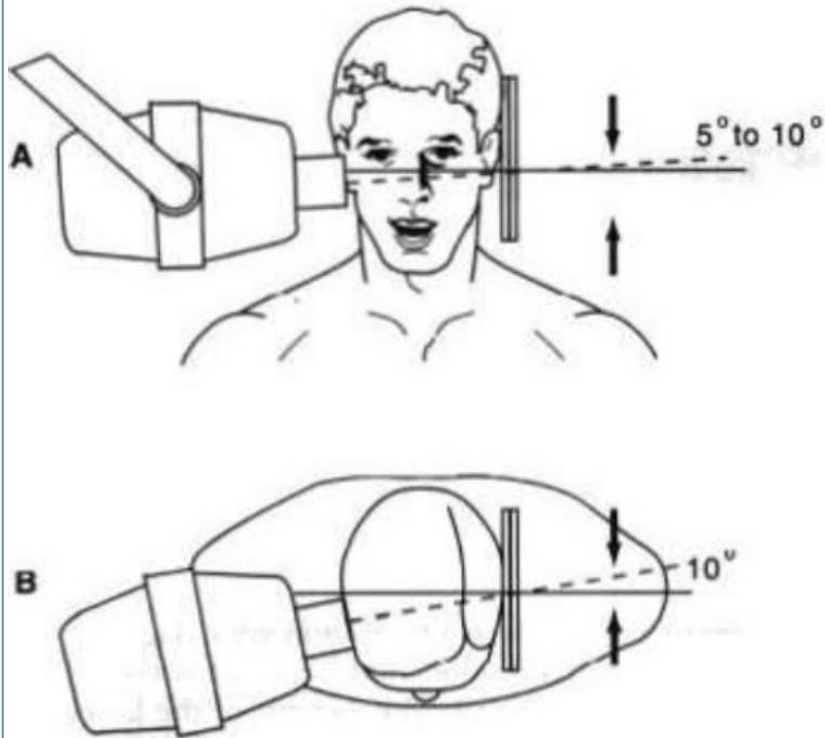
**FIG. 25-6** Transcranial projection. **A**, The central ray is oriented at a 25-degree positive angle from the opposite side (**B**) and anteriorly 20 degrees, centered over the TMJ of interest.

Indication	Area of joint seen
TMJ pain dysfunction syndrome	Lateral aspect of Glenoid fossa
Internal derangement	Articular eminence
Range of movement in joints	Joint space
	Condylar head



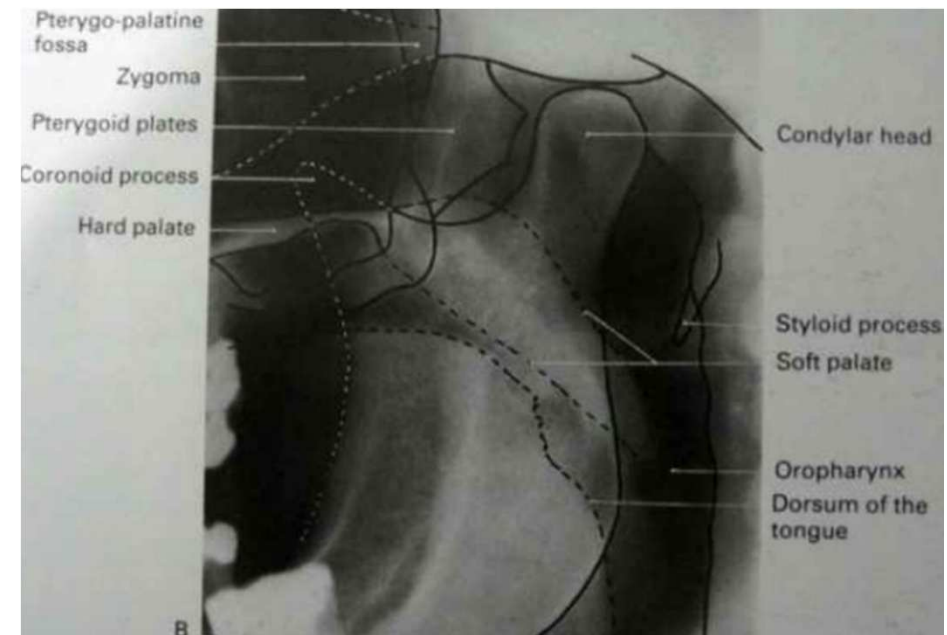
# Radiografia convenzionale

## 2. Proiezione transfaringea



**FIG. 25-8** Transpharyngeal projection. **A**, The central ray is oriented superiorly 5 to 10 degrees and **(B)** posteriorly approximately 10 degrees, centered over the TMJ of interest. Note that the mandible is positioned at maximal opening.

Indication	Area of joint seen
TMJ pain dysfunction syndrome	Lateral view: Condylar head & neck
Osteoarthritis & rheumatoid arthritis	Articular surface
Condylar head- Cyst or tumor	
Fracture of neck & condyle	



# Radiografia convenzionale

## 3. Proiezione transorbitaria

INDICATION	AREA OF JOINT SEEN
Trauma Fracture cases	Ant view of TMJ Medial displacement of fractured condyle Fracture of neck of condyle

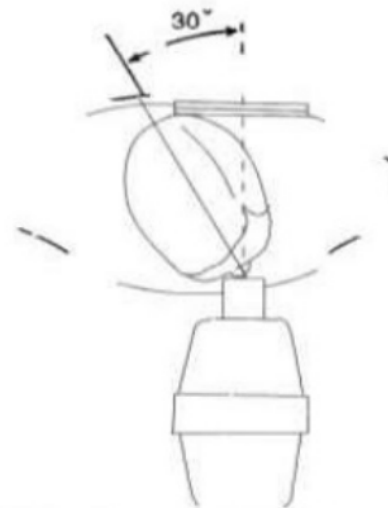


FIG. 25-10 Transorbital projection. The central ray is oriented downward approximately 10 degrees and laterally approximately 30 degrees through the ipsilateral orbit, centered over the TMJ of interest.

# STRATIGRAFIA (sostituita dalla TC)

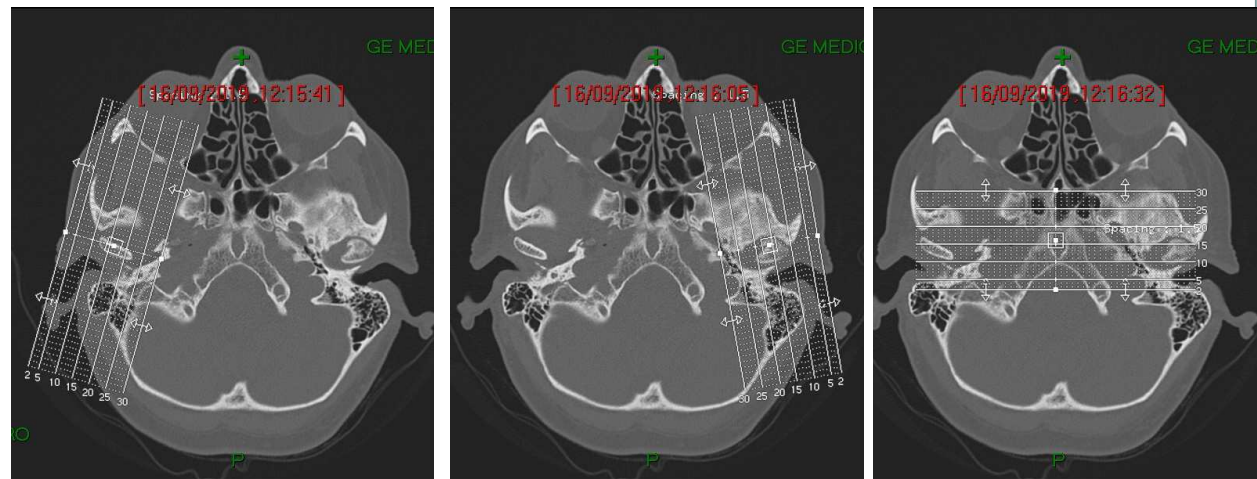


## TC (multibanco 64-128-256)

- Studio strutture ossee
- Ricostruzioni 3D e multiplanari (sagittali e coronali)
- Informazioni dei tessuti molli circostanti
- Nessuna informazione sul menisco

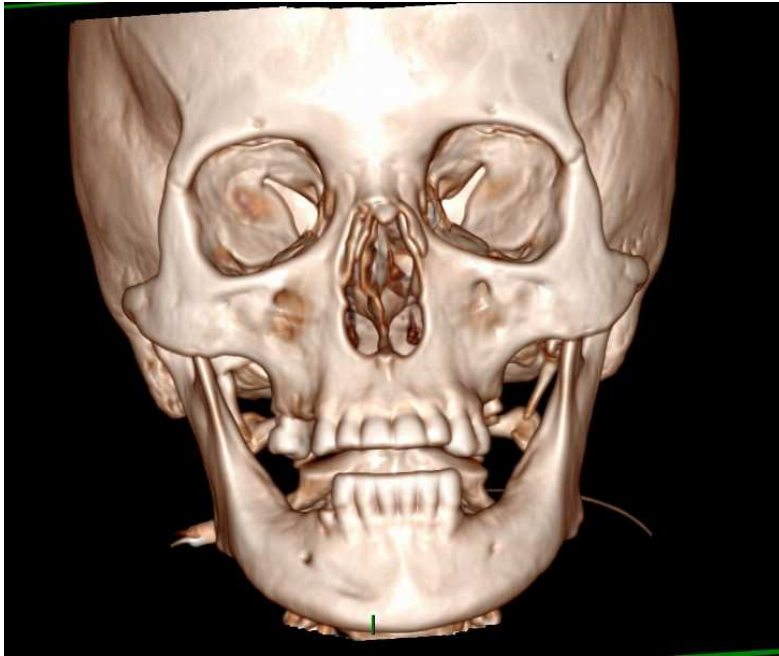
### Indicazioni

- Anchilosi
- Tumori ossei
- Fratture



# TC

- Integrità dei profili corticali
- Forma e dimensioni dei condili
- Rapporti tra condilo e fossa glenoidea
- Spazio articolare



# Imaging tessuti molli

## ARTROGRAFIA

Norgaard 1940

Tecnica per visualizzare indirettamente il menisco articolare iniettando all'interno dell'articolazione sotto guida fluoroscopica il mezzo di contrasto

Non più utilizzata dopo l'avvento della RM

# ECOGRAFIA

Descritta come alternativa nell'imaging dell'ATM da Stefanoff (1992)

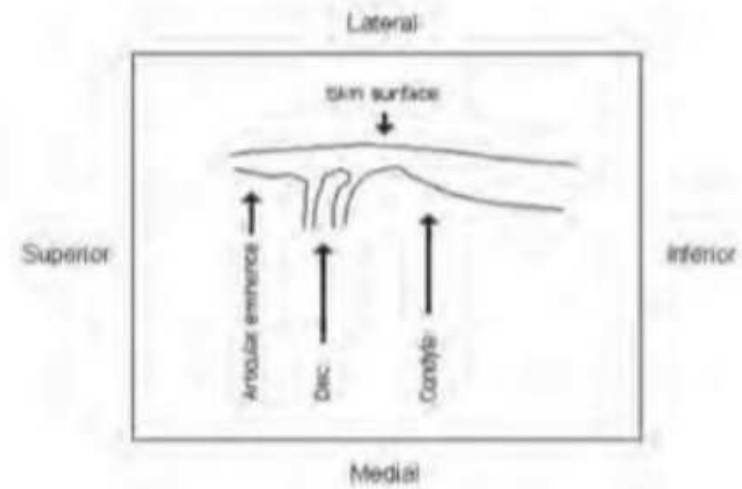
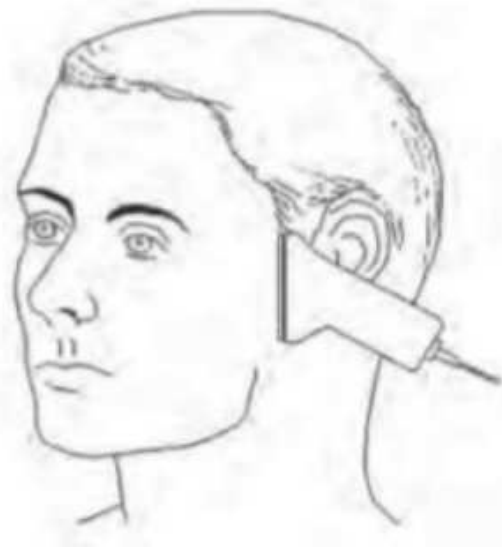
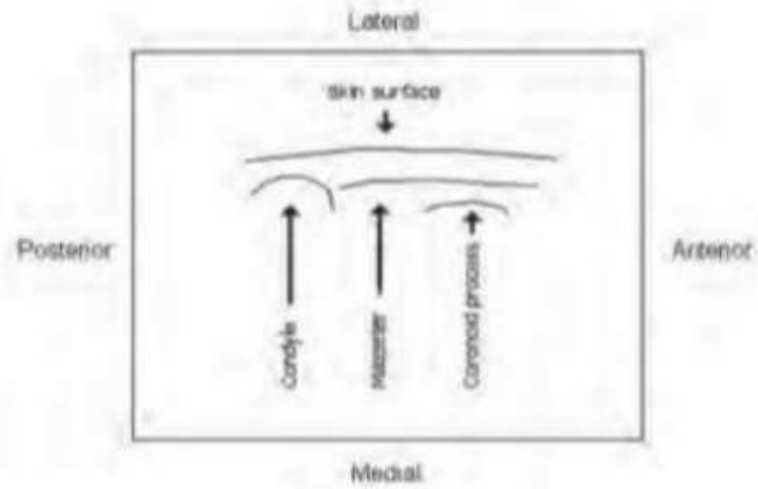
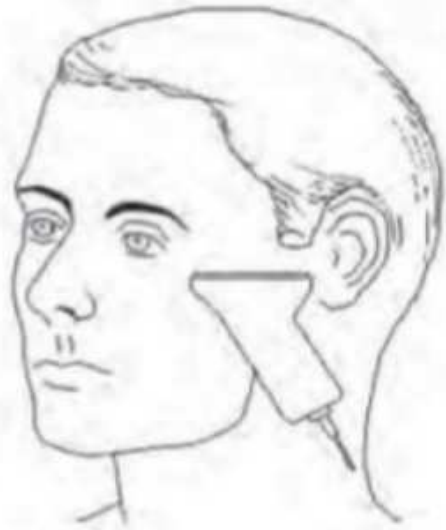
## Vantaggi

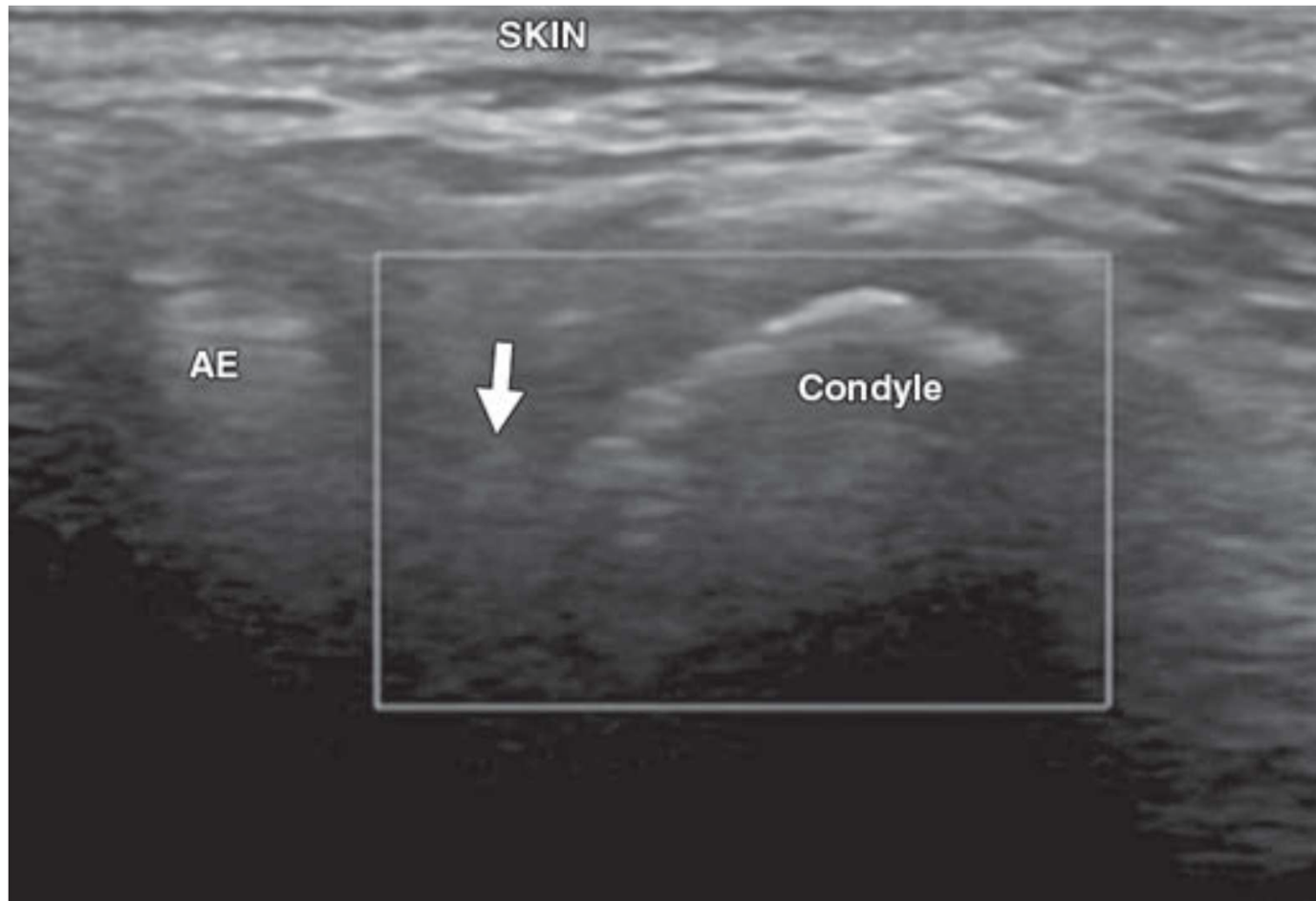
- Non invasiva, economica
- Dislocazione del menisco e versamento articolare
- Utile in pazienti pediatrici

## Svantaggi

- Scarsa accessibilità porzione mediale dell'ATM
- Necessità di operatori esperti

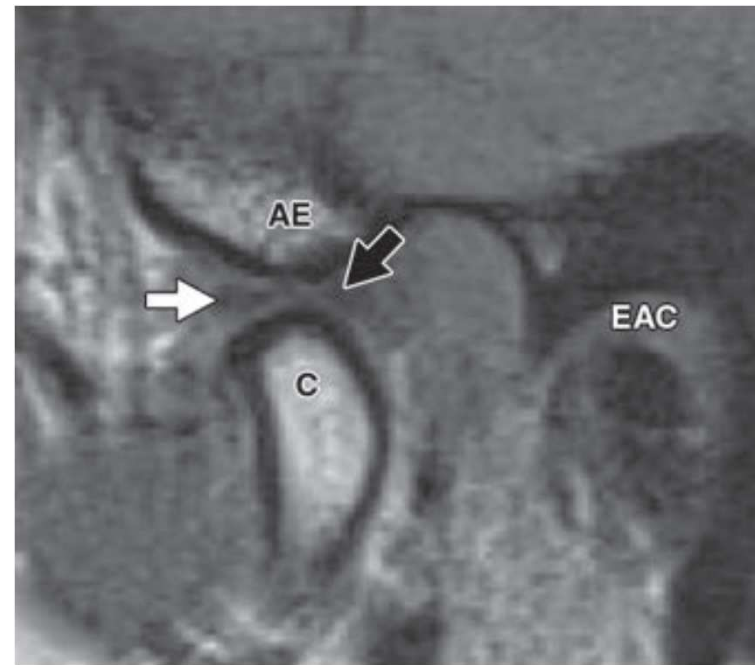
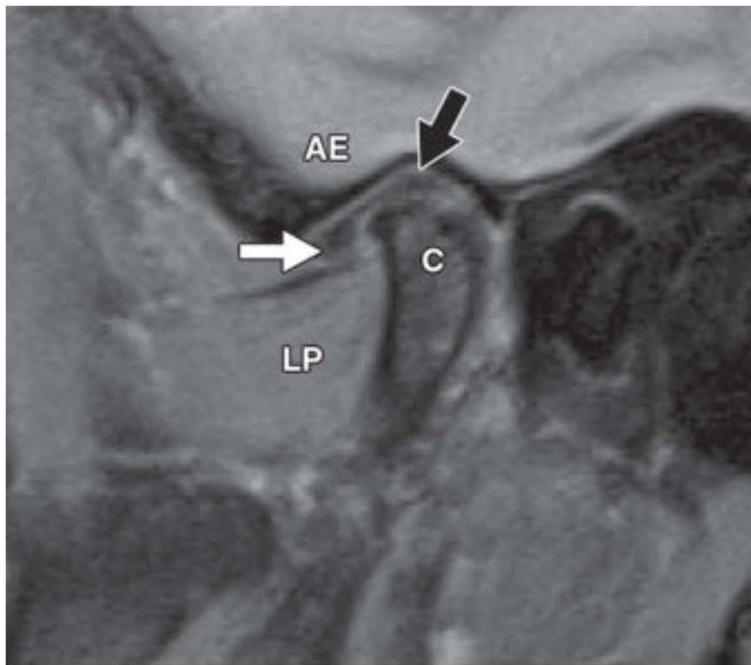
<b>Sensitività</b>	13-100% dislocazione disco
	70-94% erosione condilare
	71-84% versamento articolare

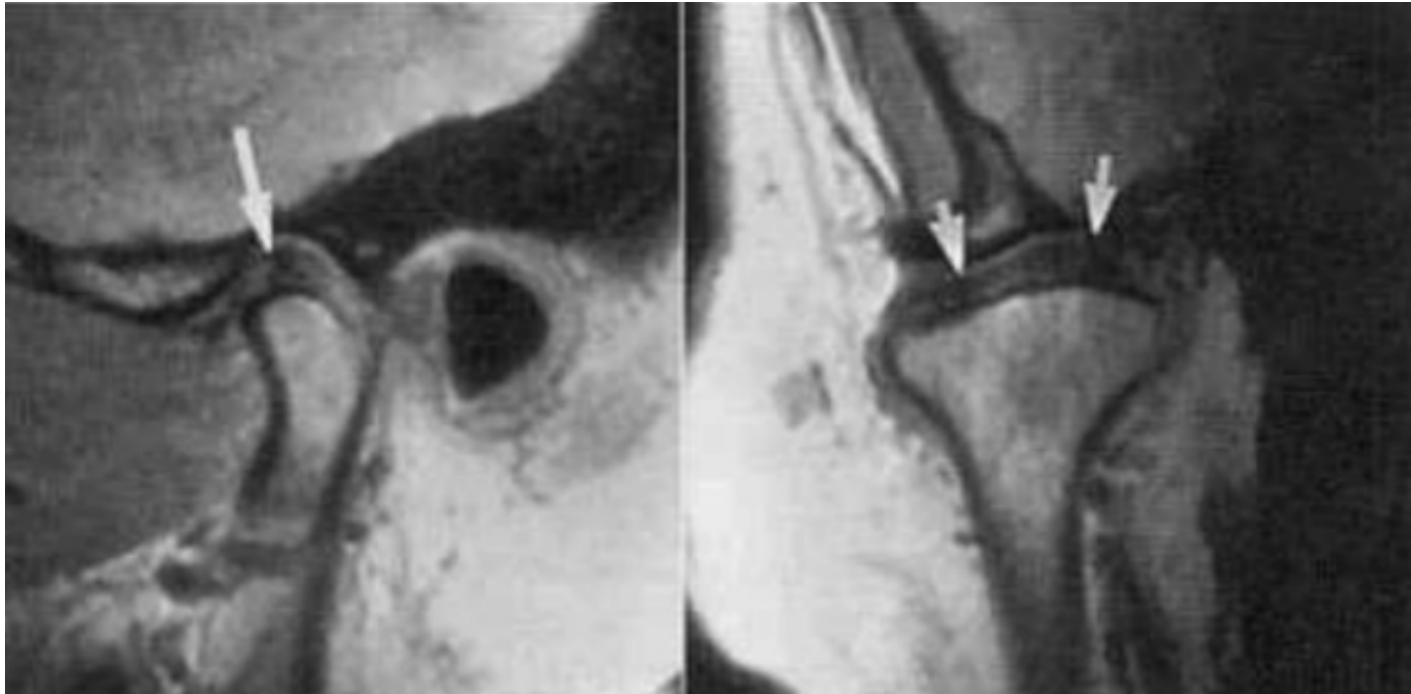




## RM ( $\geq 1.5T$ )

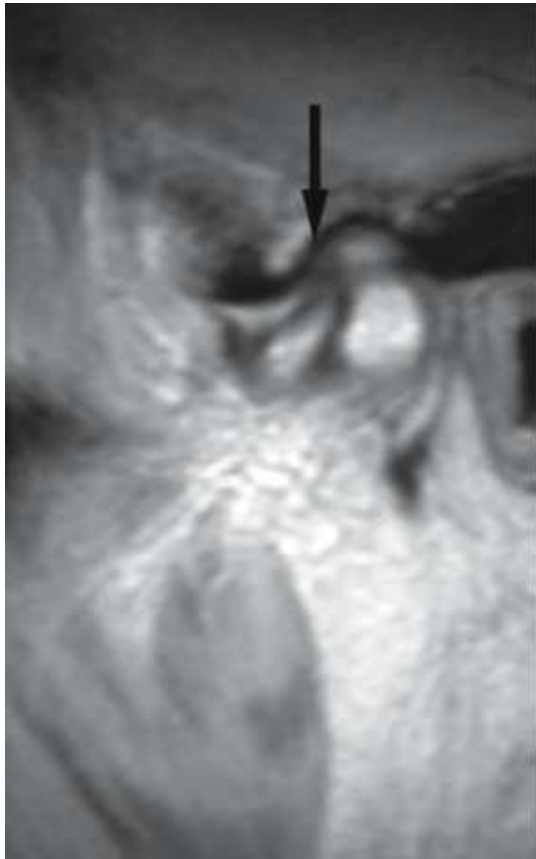
- Sequenze pesate in T1 e T2 sui piani sagittale e coronale
- Spessore  $\leq 3$  mm
- T1 buone informazioni su osso e menisco
- T2 riconosce infiammazione e versamenti articolari
- Sequenze a bocca chiusa e bocca aperta
- Possibilità di sequenze dinamiche
- MDC per infiammazione sinovia o artropatia
- Claustrofobia o altre controindicazioni assolute



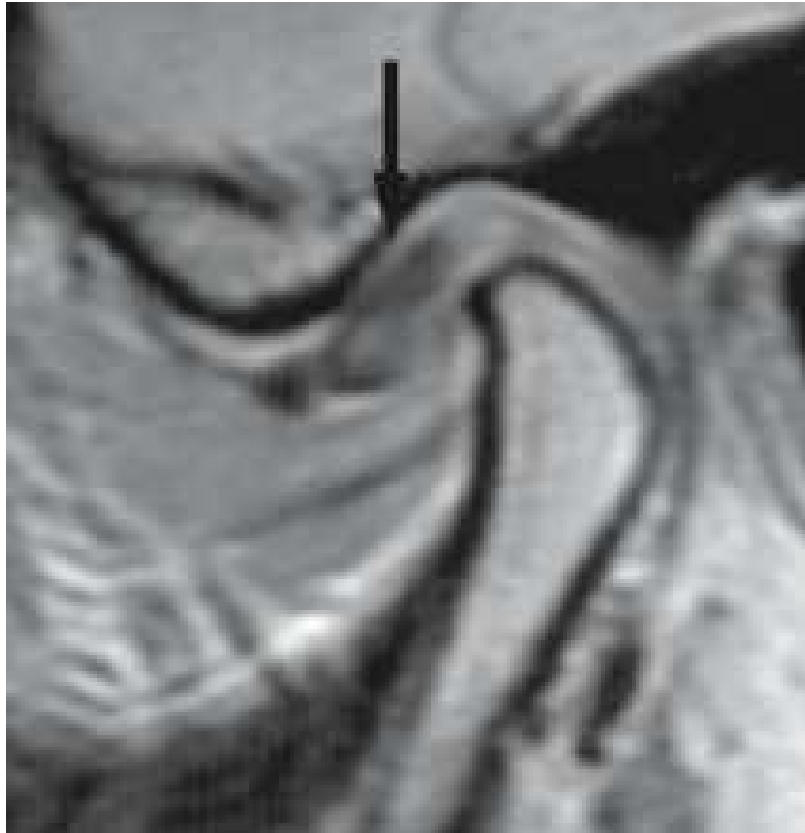


# Patologie dell'articolazione TM

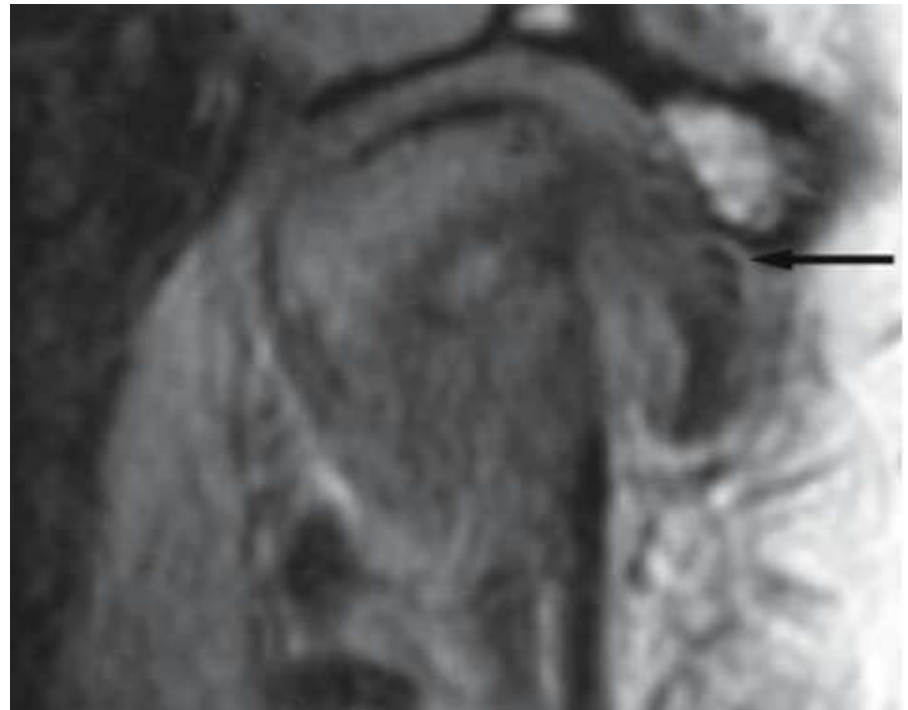
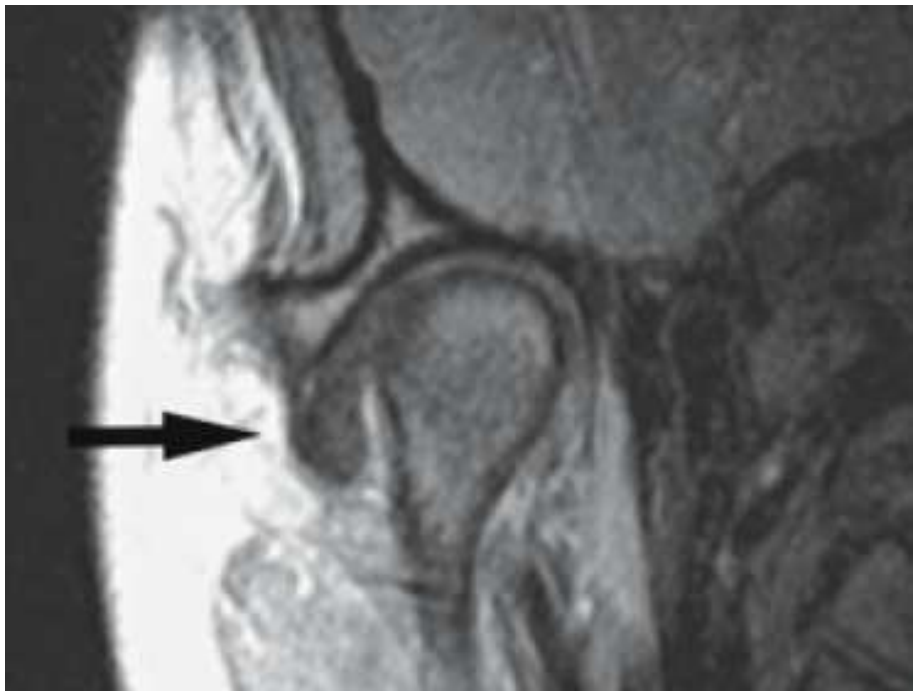
- Disordini dell'articolazione
- Infezioni
- Tumori
- Lesioni traumatiche
- Anomalie di sviluppo



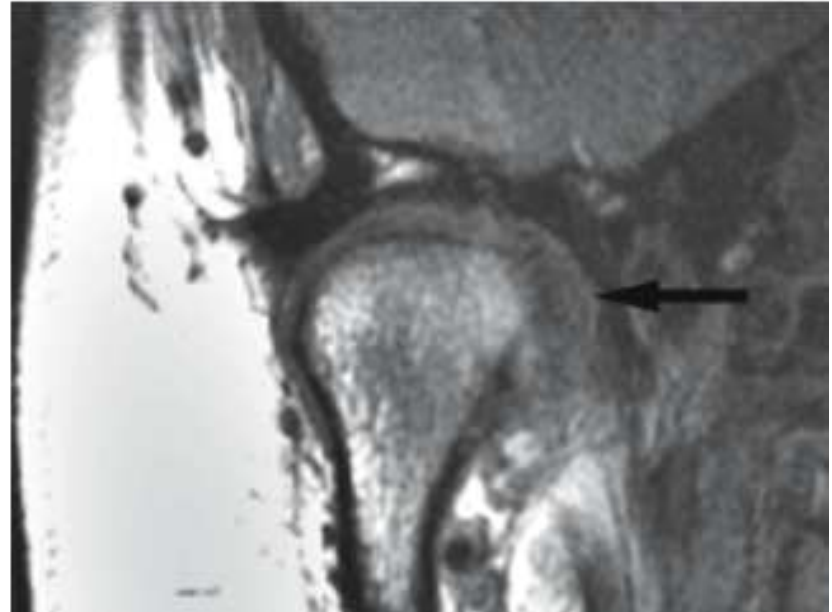
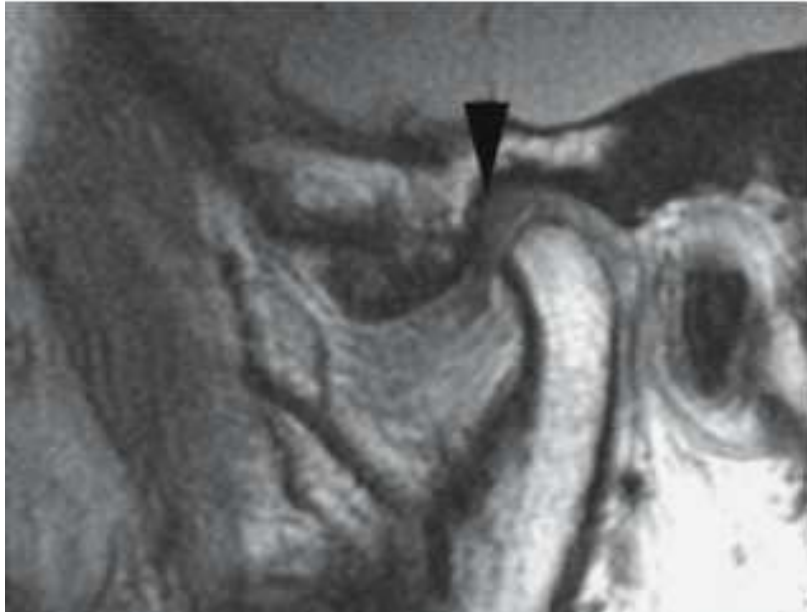
Dislocazione parziale anteriore del menisco con riduzione nell'apertura della bocca



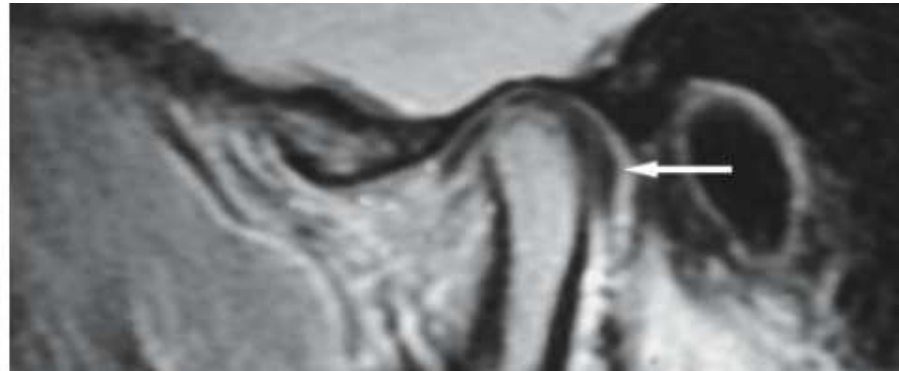
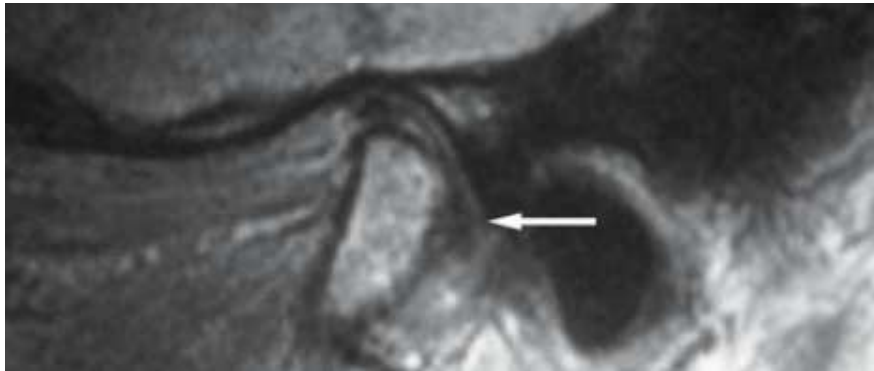
Dislocazione anteriore del menisco senza riduzione nell'apertura della bocca



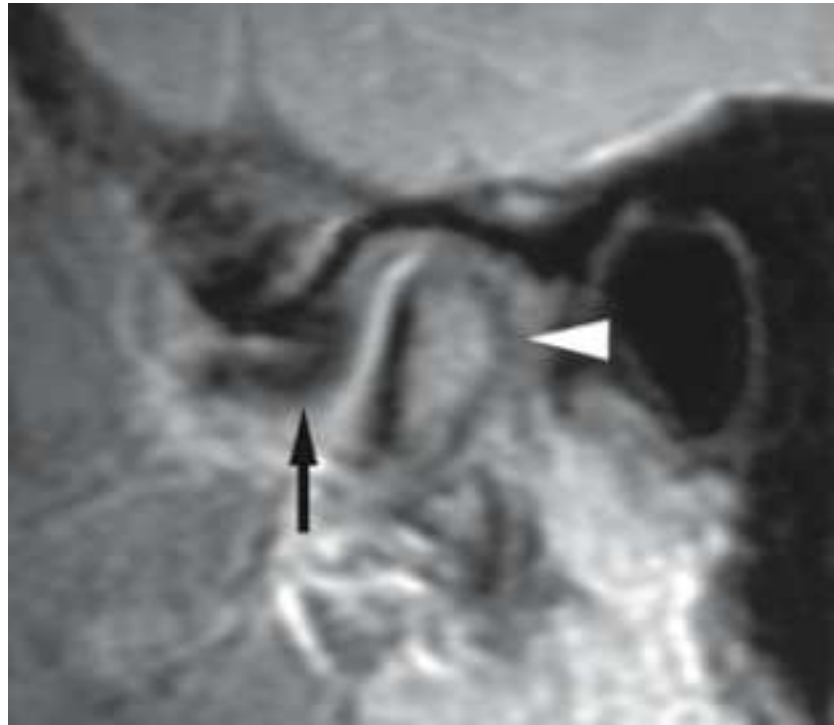
Dislocazione laterale del menisco



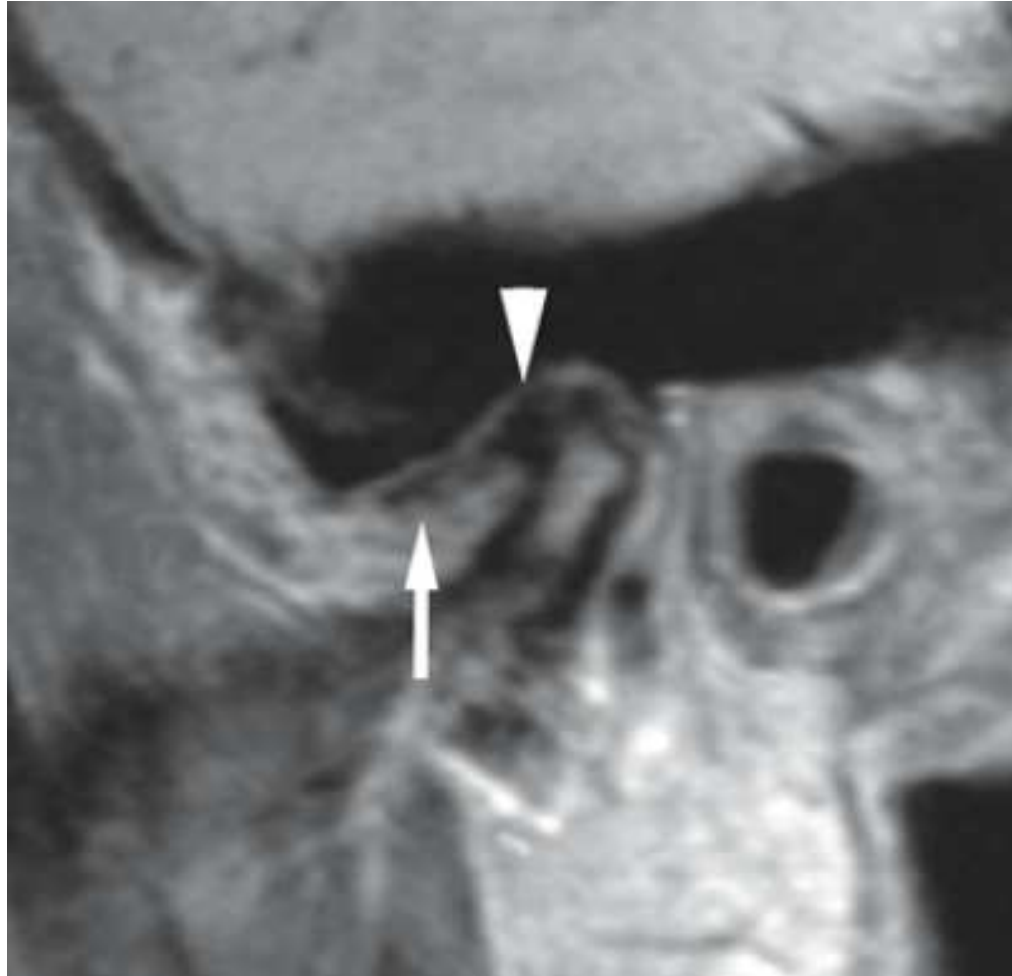
Dislocazione mediale del menisco



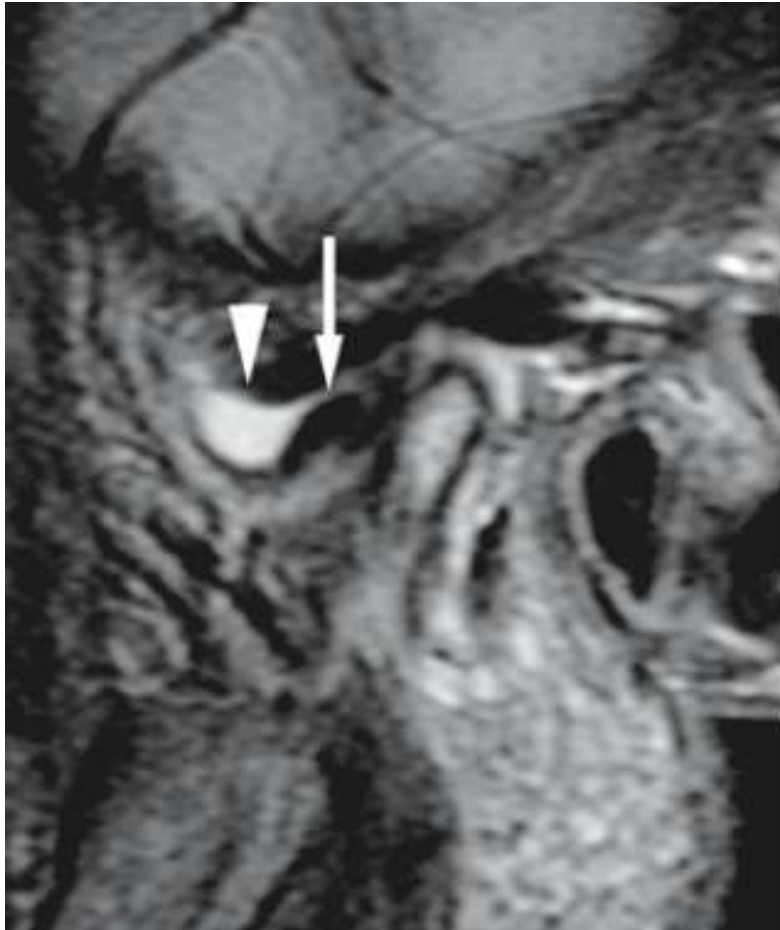
## Dislocazione posteriore del menisco



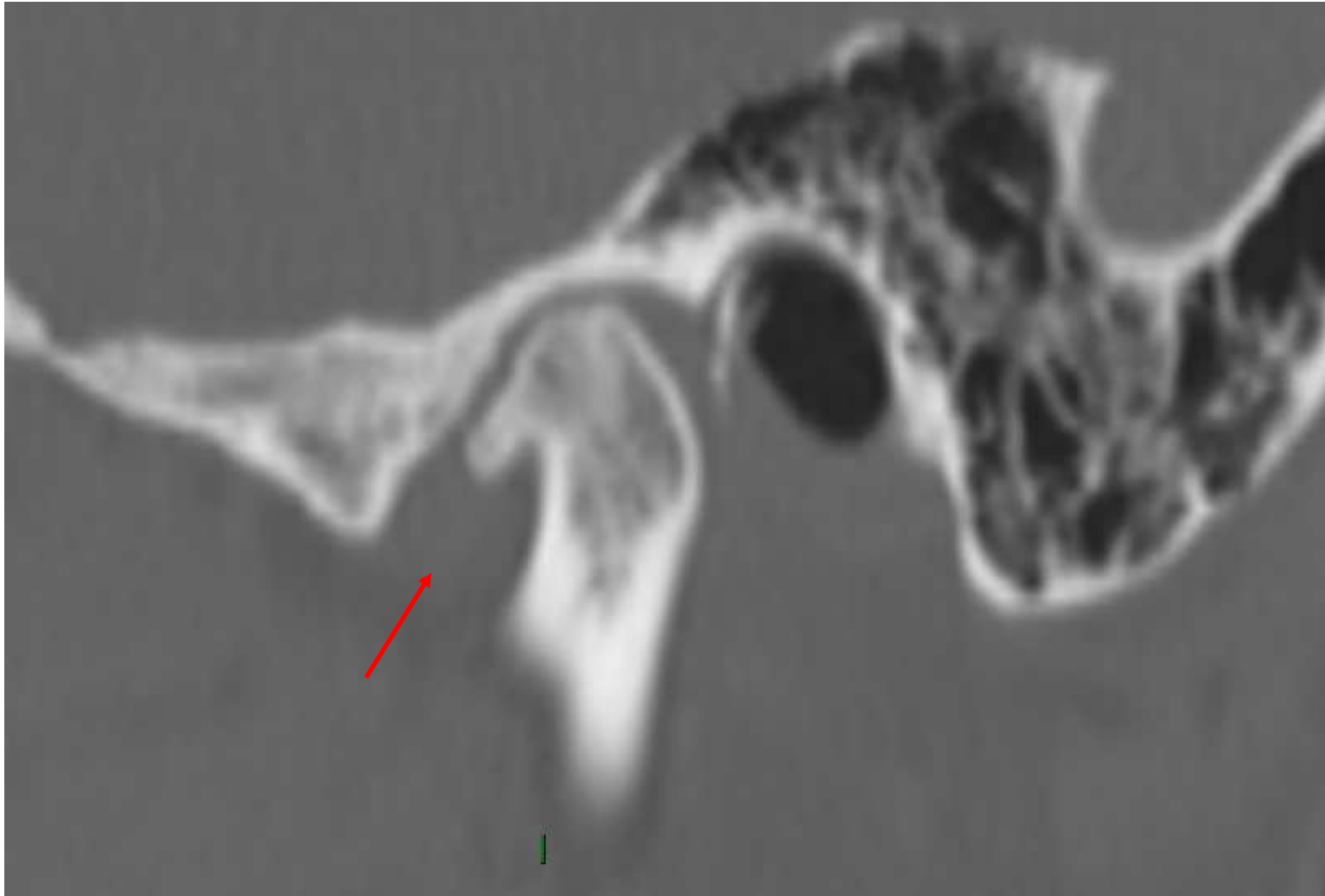
Dislocazione anteriore del menisco ed edema del condilo



Dislocazione anteriore del menisco ed osteoartrite

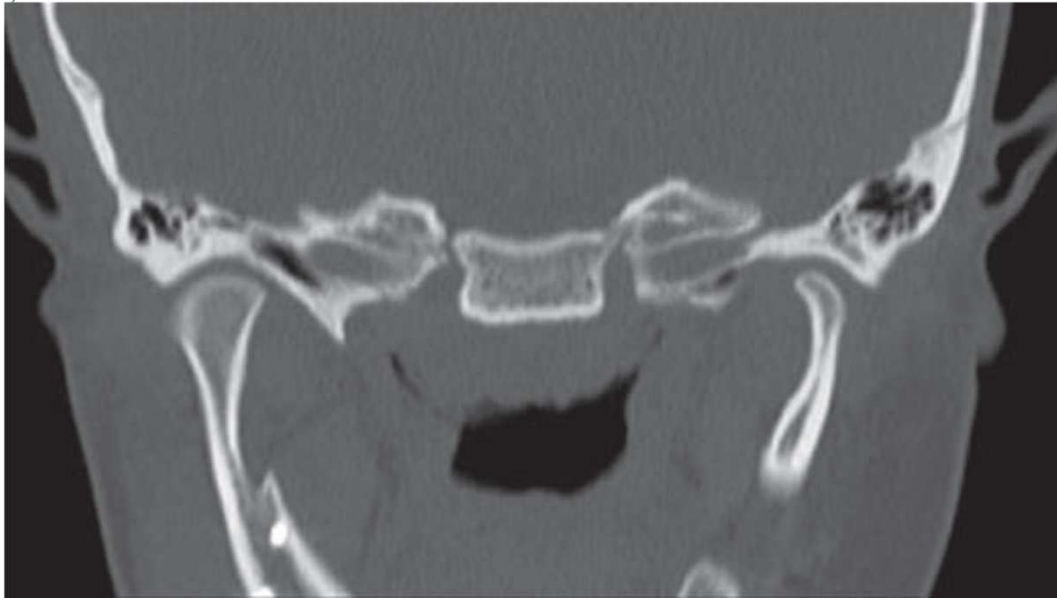


Dislocazione anteriore del menisco, osteoartrite e versamento articolare

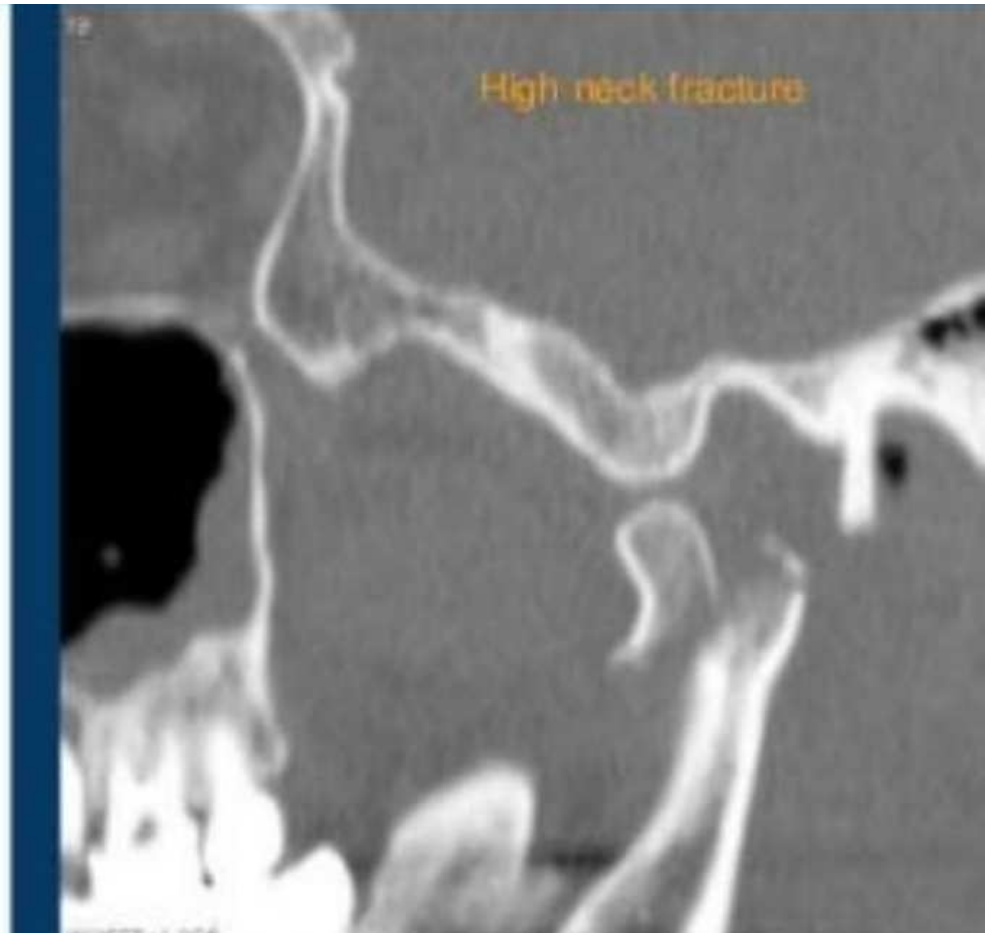
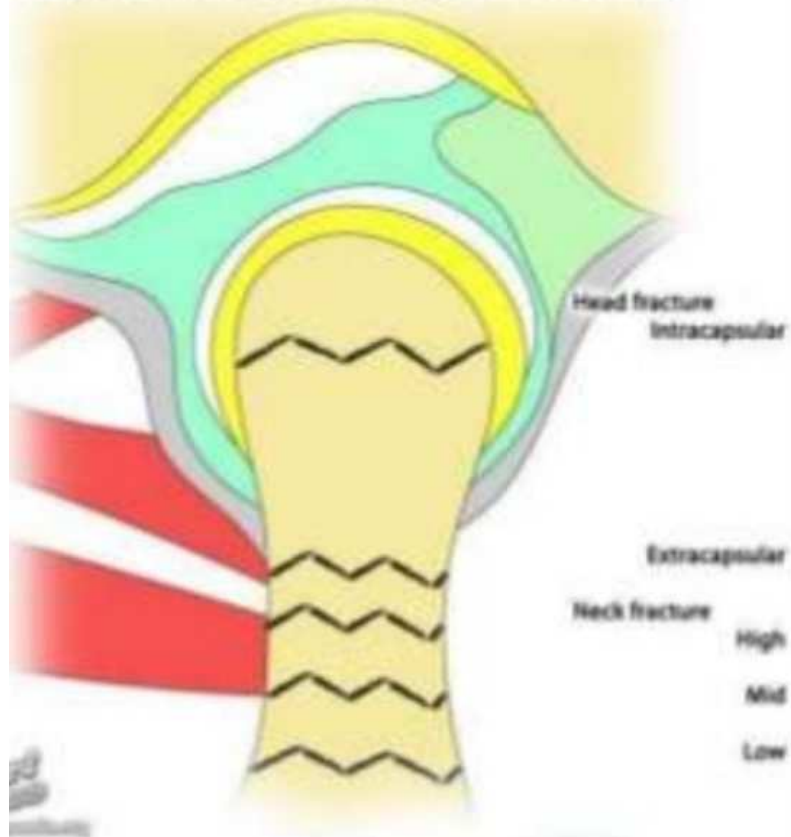


Osteofita

# Displasia



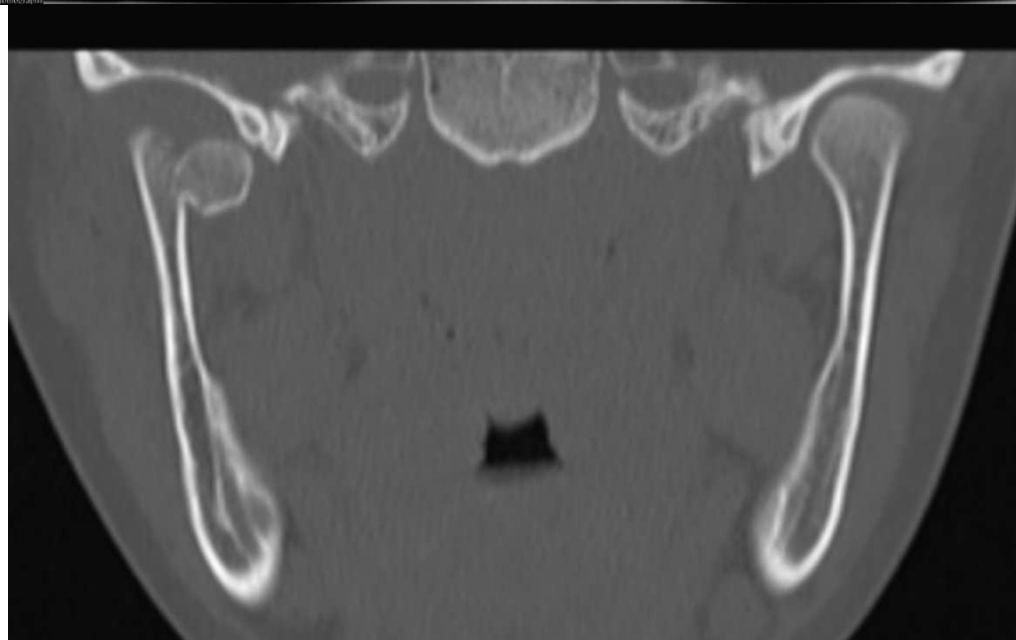
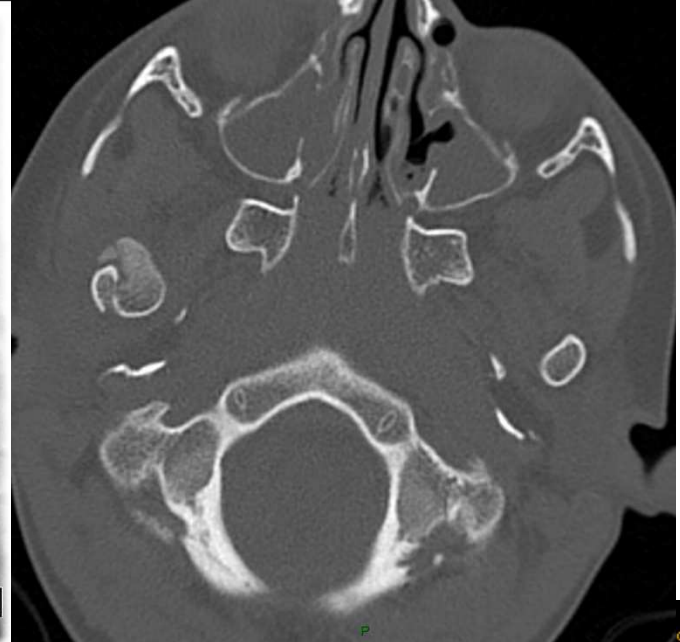
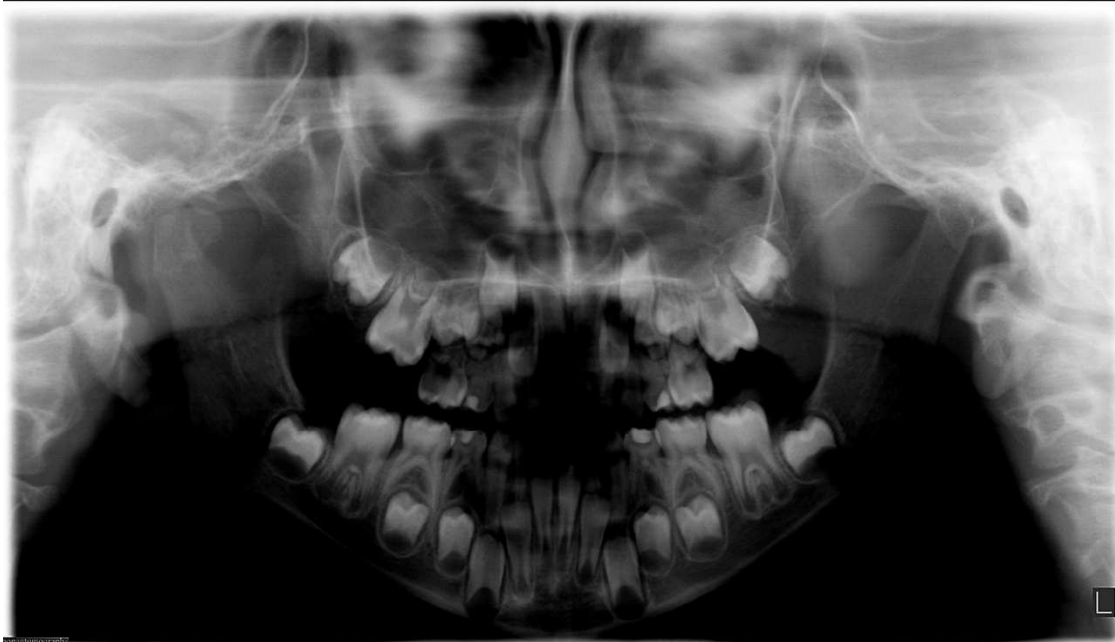
## Classification of Condylar process fractures

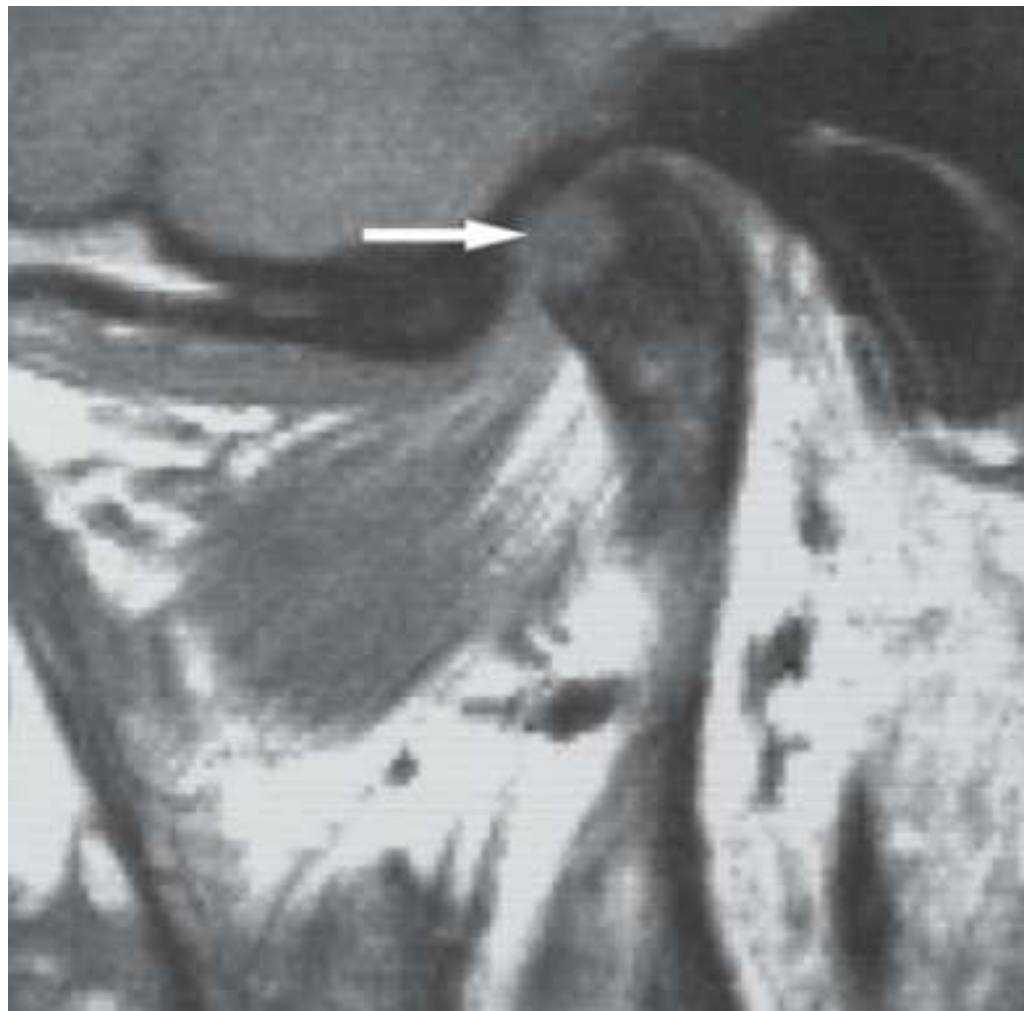


# Frattura

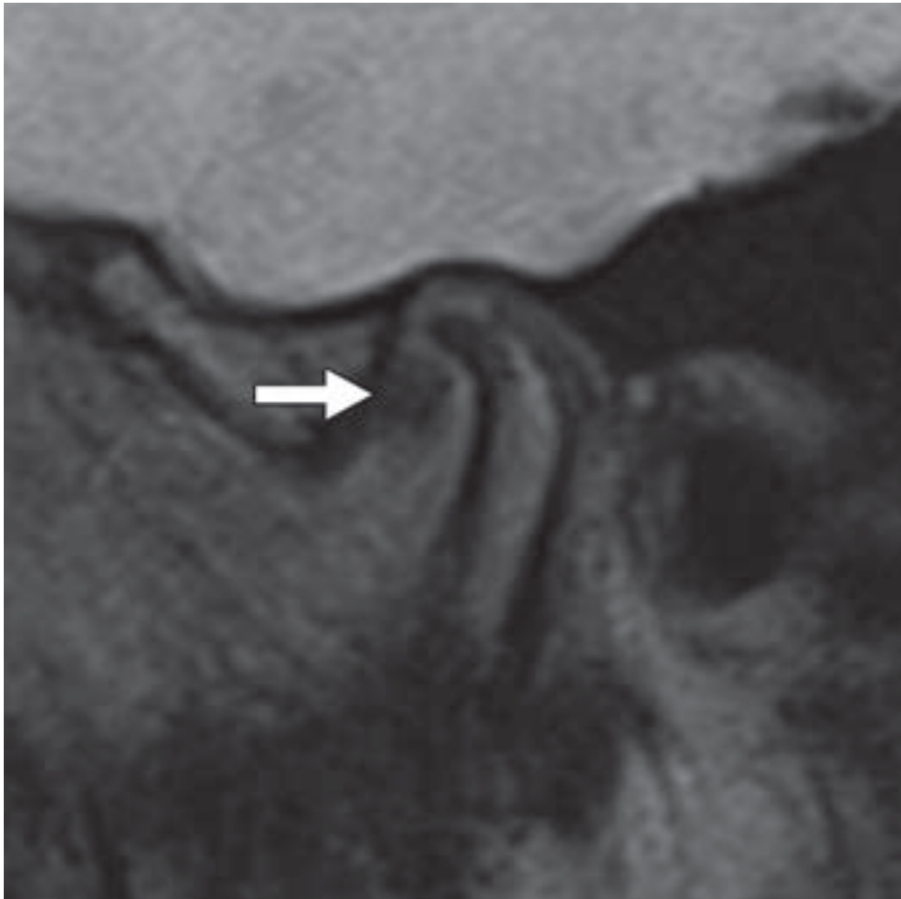


Frattura del condilo

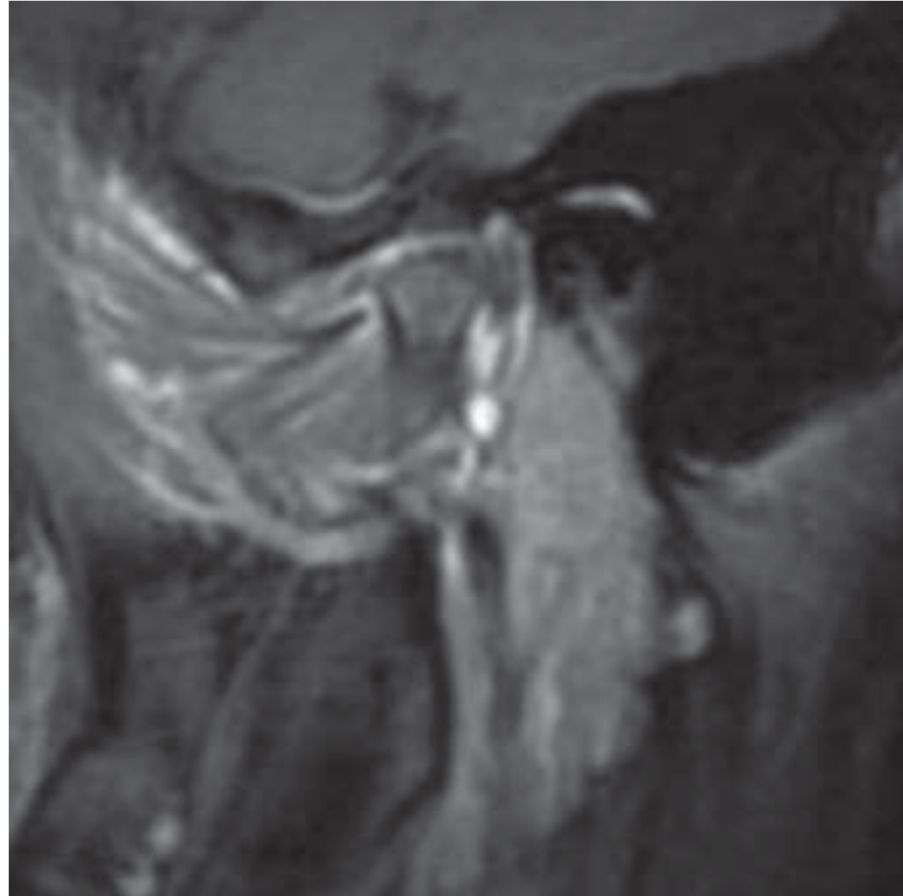




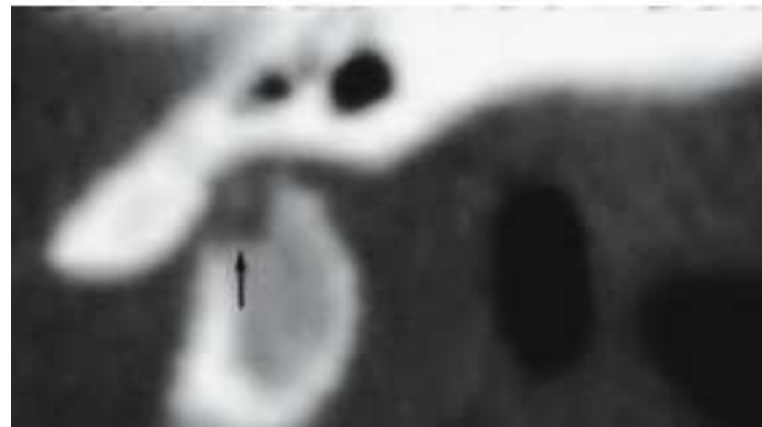
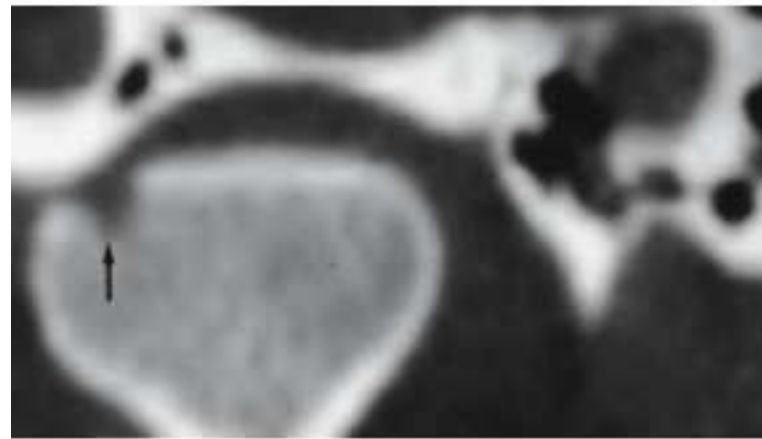
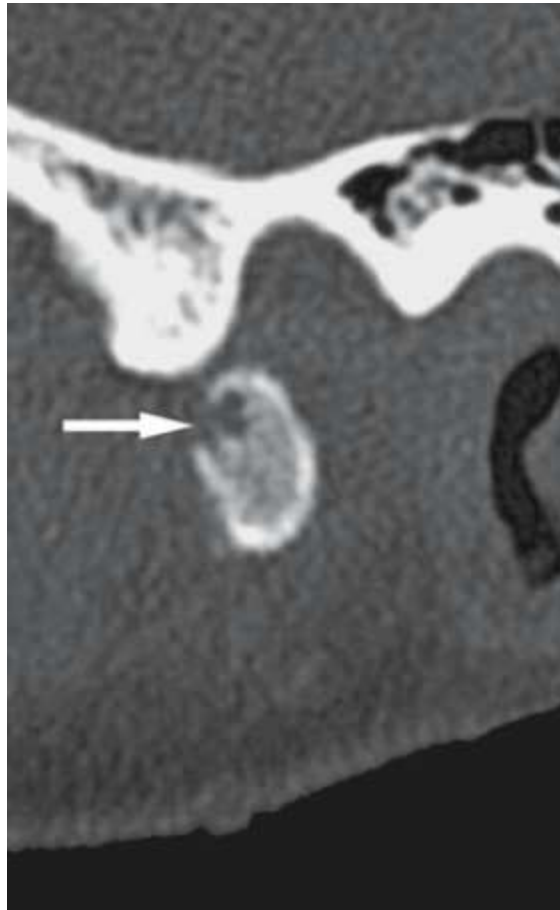
Artrite reumatoide con ampia erosione condilare



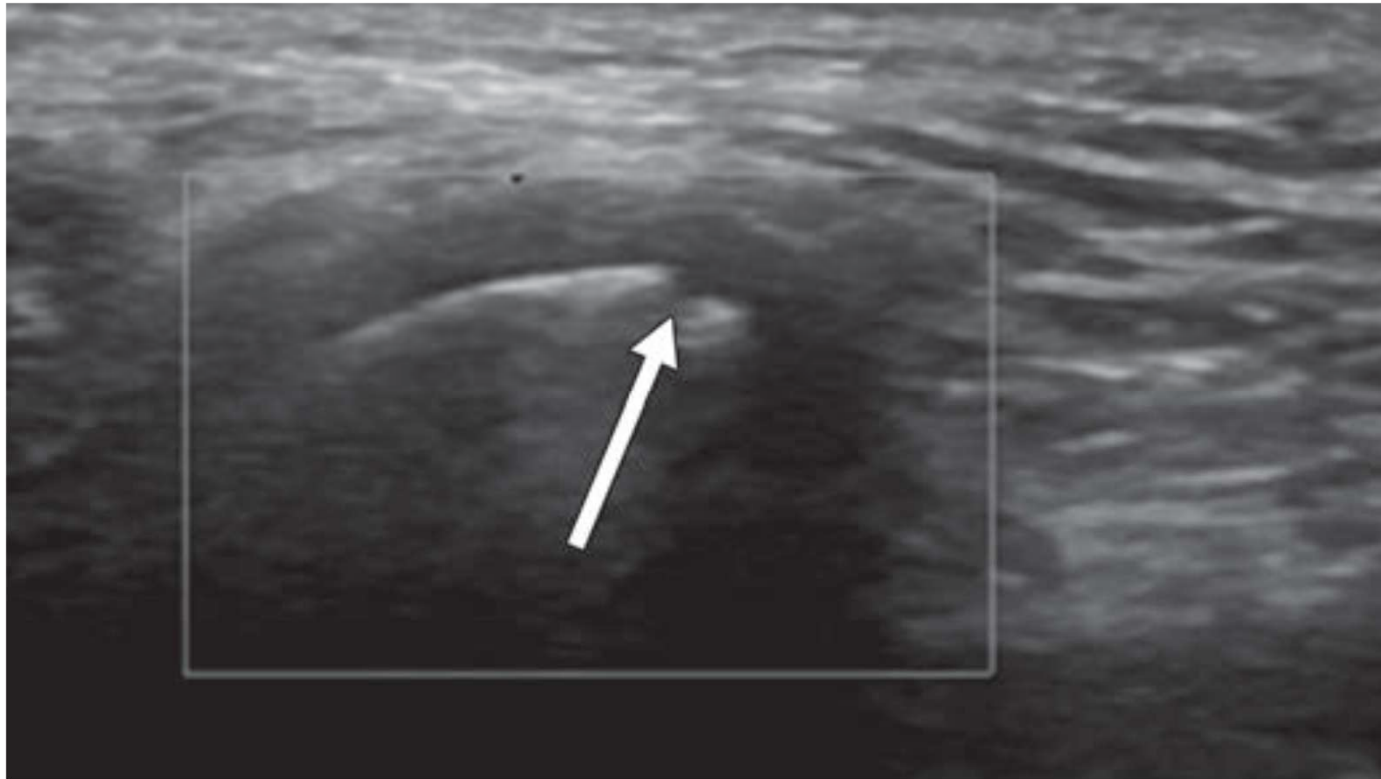
## Artrite Reumatoide

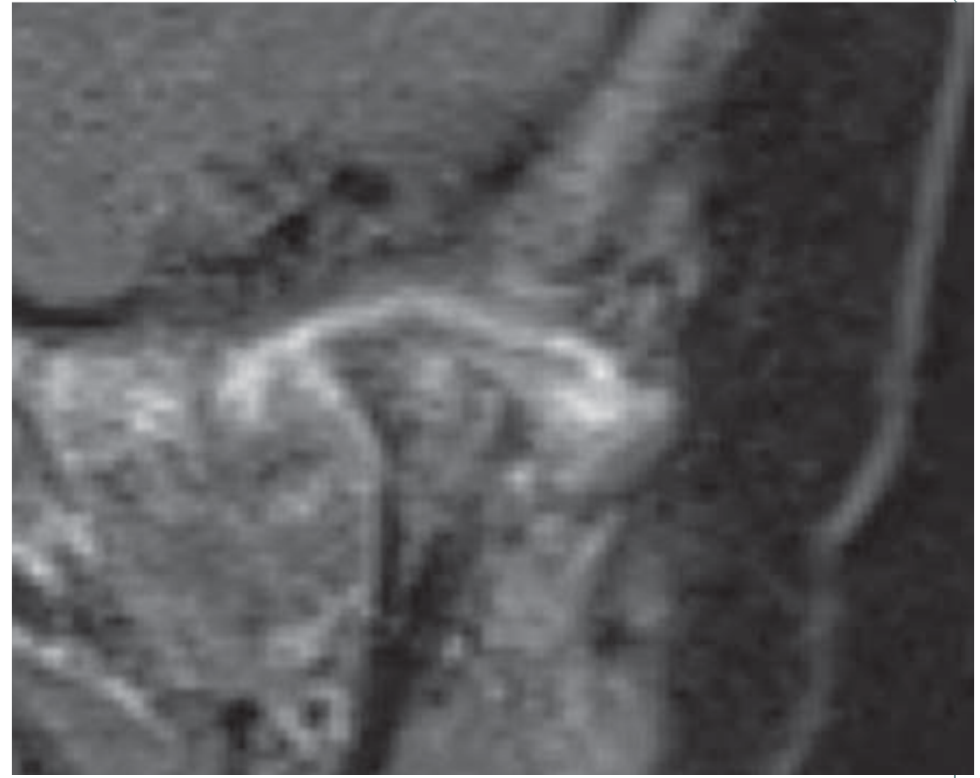


## **Artrite Psoriasica**

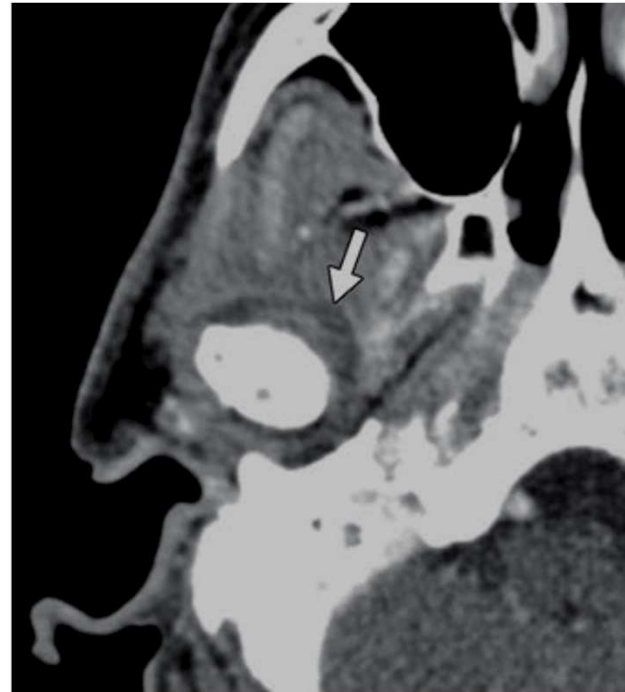
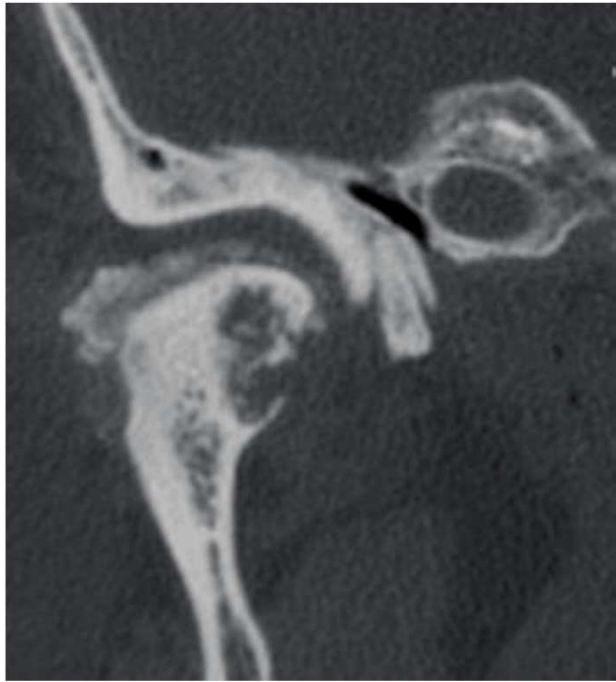
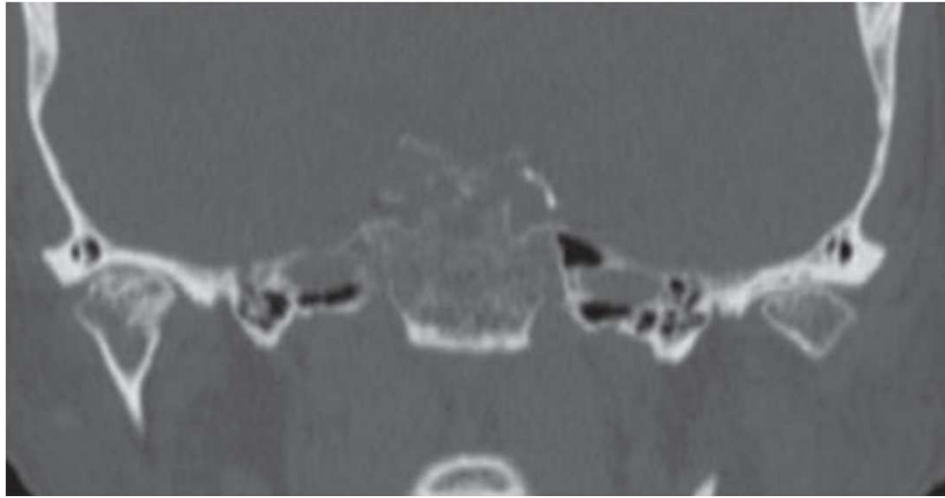


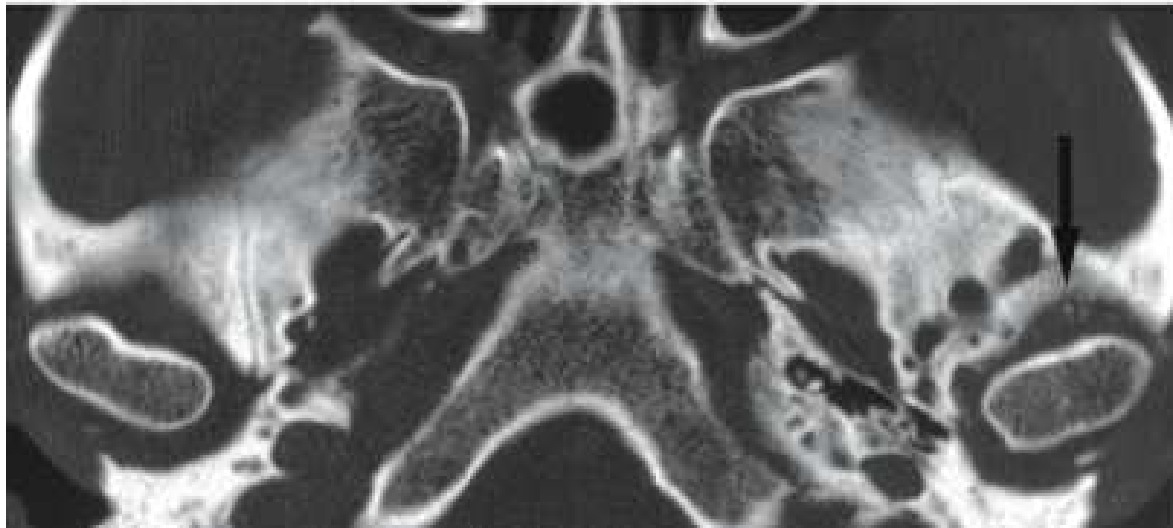
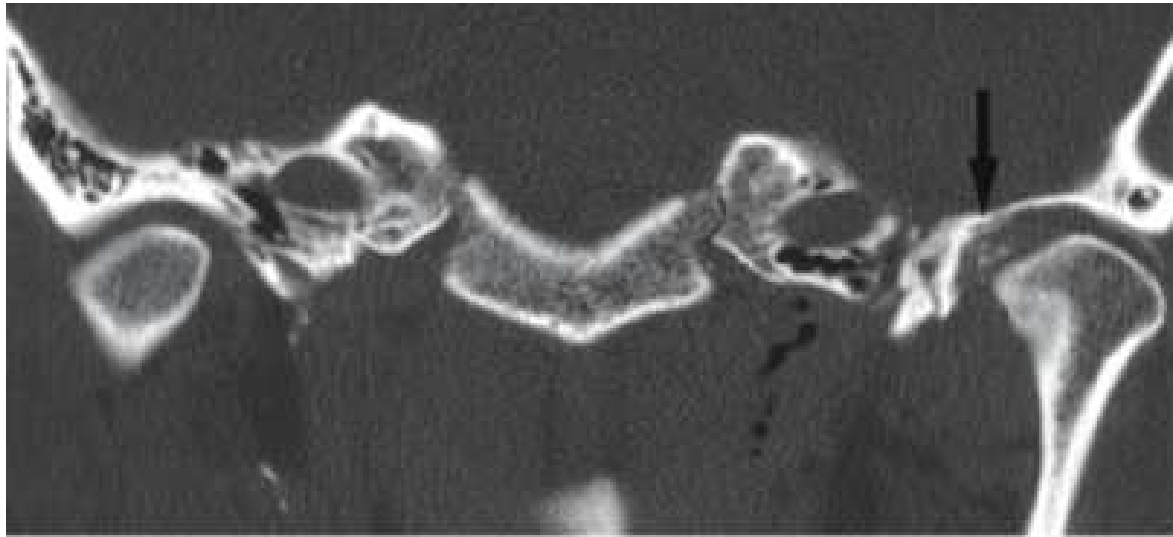
Erosioni in artropatia psoriasica



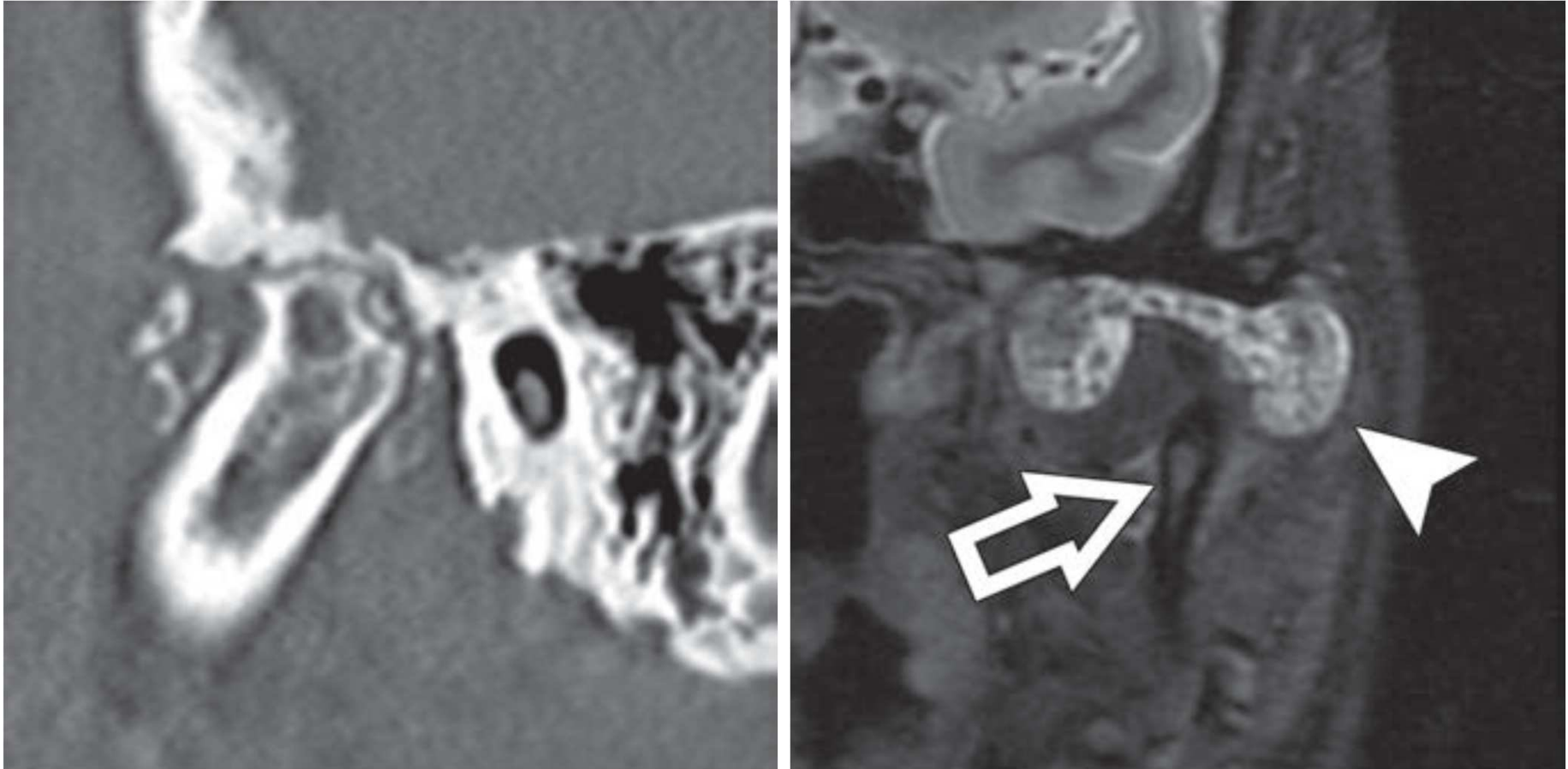


## Artrite infiammatoria

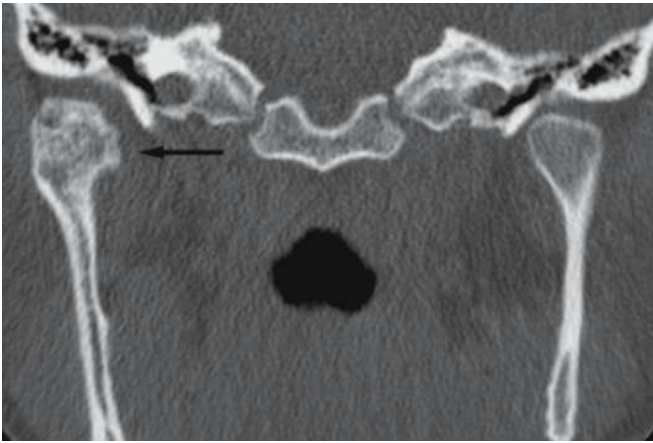




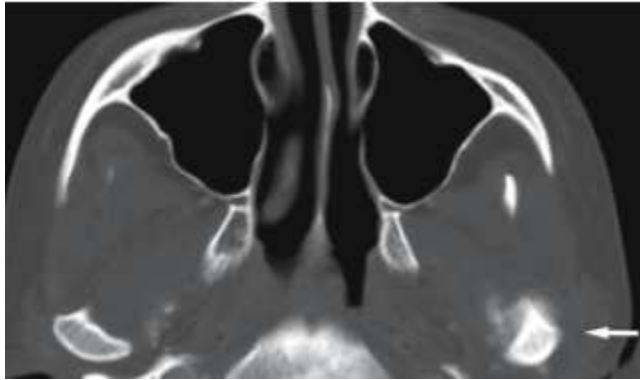
Depositi di calcio nello spazio articolare in pseudogotta



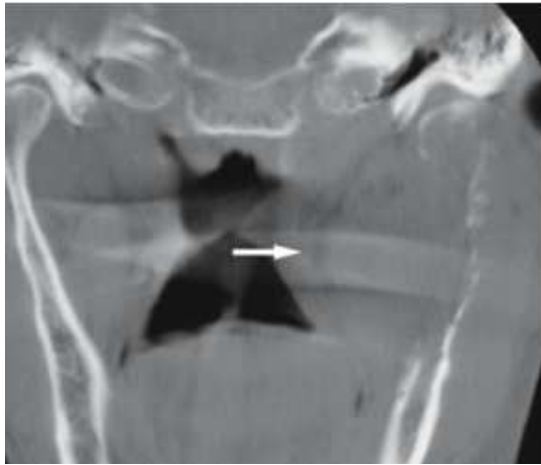
## Condromatosi Sinoviale



Osteocondroma



Osteosarcoma



Metastasi da  
ca polmone

# CONCLUSIONI

La TC e la RM sono le diagnostiche più usate  
nello studio dell'articolazione TM

La scelta della tecnica di imaging deve  
essere basata sulla clinica con  
riguardo anche alla radioesposizione e ai costi