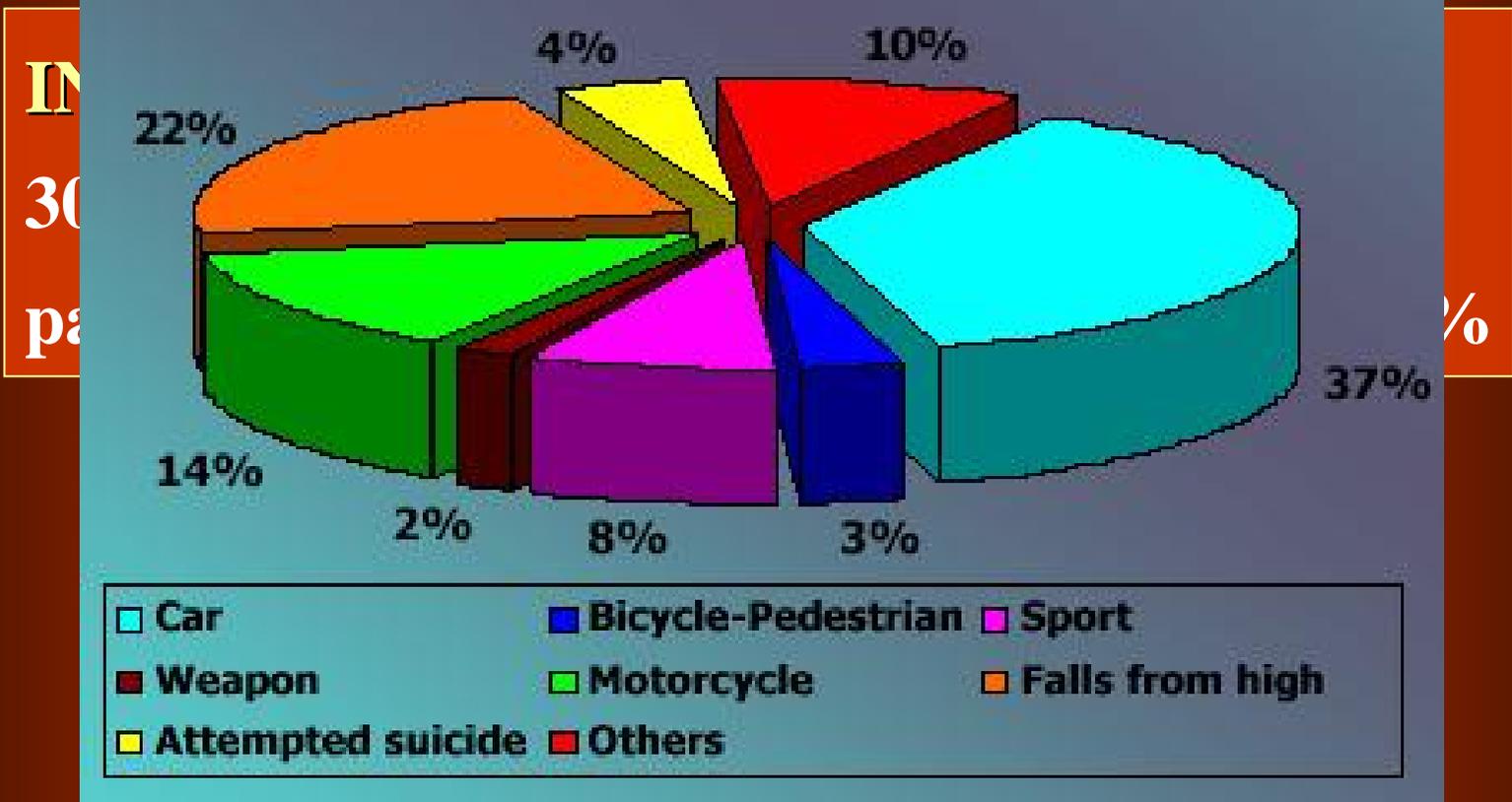


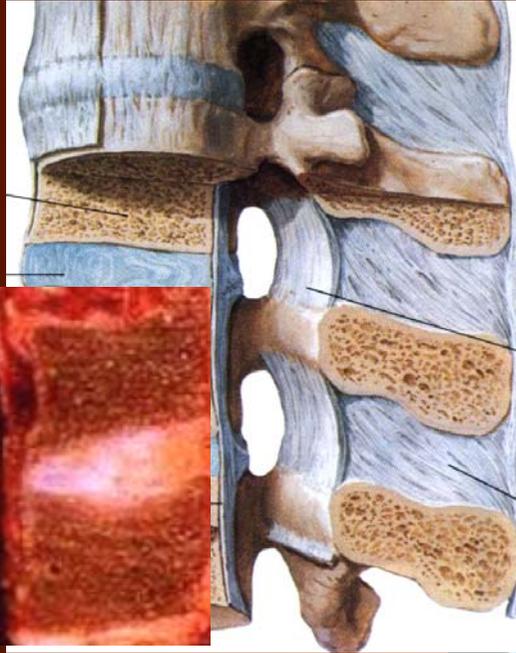
# TRAUMI VERTEBRO-MIDOLLARI



**Elevato numero di  
invalidi giovani**

# TRAUMI VERTEBRO-MIDOLLARI

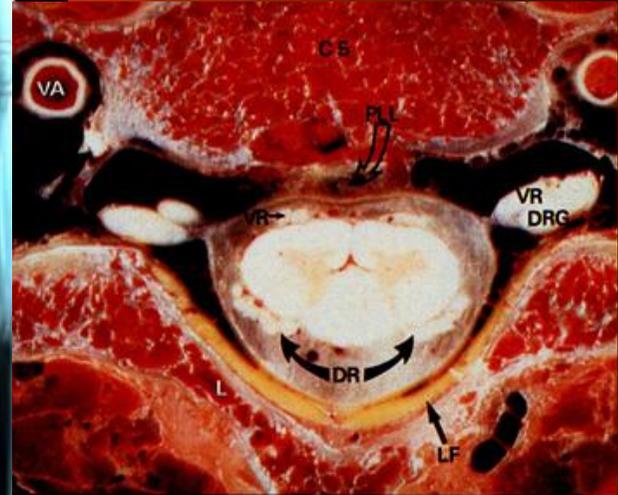
LESIONI TRAMATICHE DEL CONTENUTO



VERTEBRE  
DISCHI INTERSOMATICI  
LEGAMENTI



SPAZIO EPIDURALE  
MENINGI  
MIDOLLO SPINALE  
RADICI NERVOSE



LESIONI TRAMATICHE DEL CONTENUTO

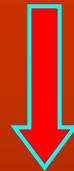
# TRAUMI VERTEBRO-MIDOLLARI



# TRAUMI VERTEBRO-MIDOLLARI

## LESIONI TRAUMATICHE DEL CONTENENTE

- VERTEBRE
- DISCHI INTERSOMATICI
- LEGAMENTI



- integrità corpi vertebrali
- allineamento muro vertebrale
- integrità archi neurali

# INDAGINI NEURORADIOLOGICHE

**Radiologia convenzionale**  
**Tomografia Computerizzata**  
**Risonanza Magnetica**

## Indagine di prima istanza

- \* studio rapido ed “efficace” del contenente
- \* panoramico della colonna vertebrale
- > *nel 20% - 40% dei pazienti con frattura “maggiore”  
si riscontrano lesioni spinali non contigue*

# *RX*

- \* Allineamento corpi
- \* Morfologia corpi
- \* Allineamento peduncoli
- \* Allineamento spinosi
- \* Tessuti pre e paravertebrali



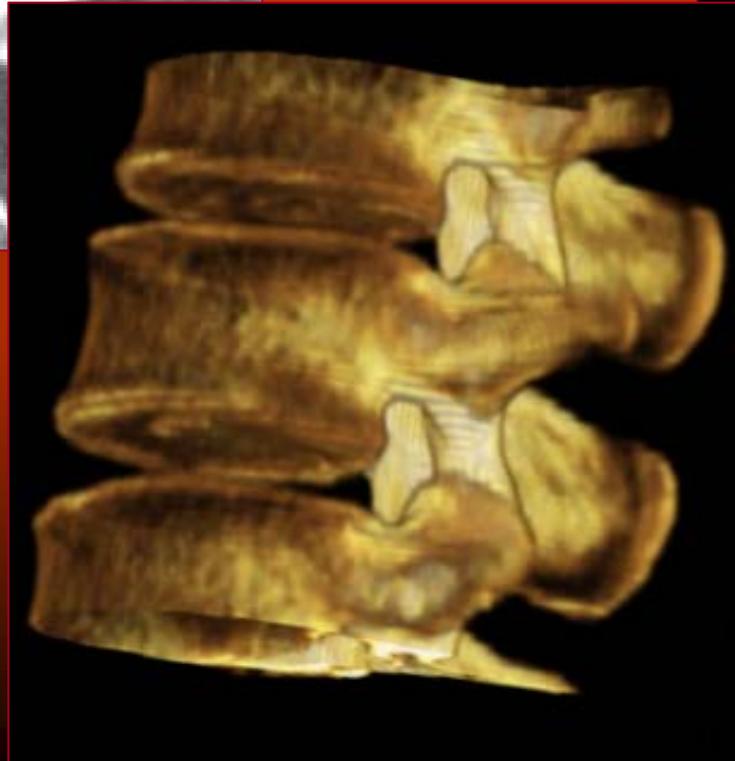
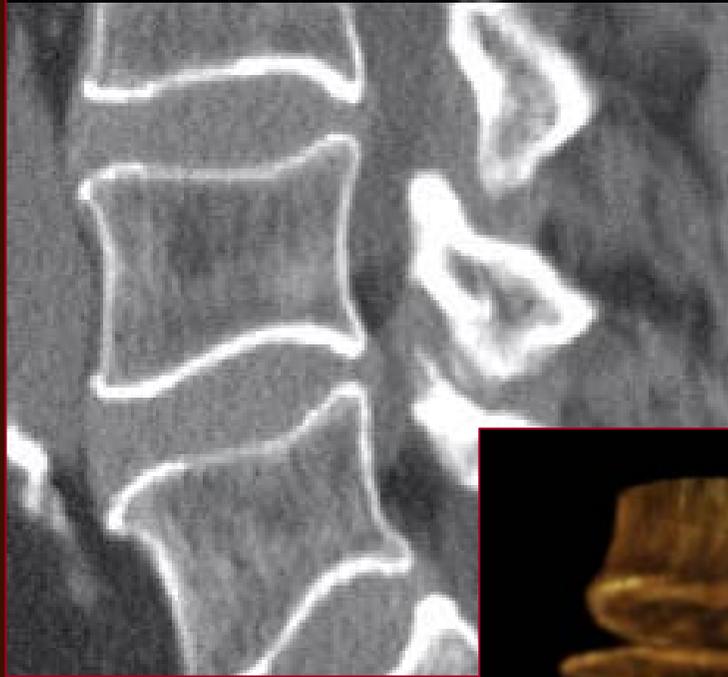
# INDAGINI NEURORADIOLOGICHE

Radiologia convenzionale  
**Tomografia computerizzata**  
Risonanza Magnetica

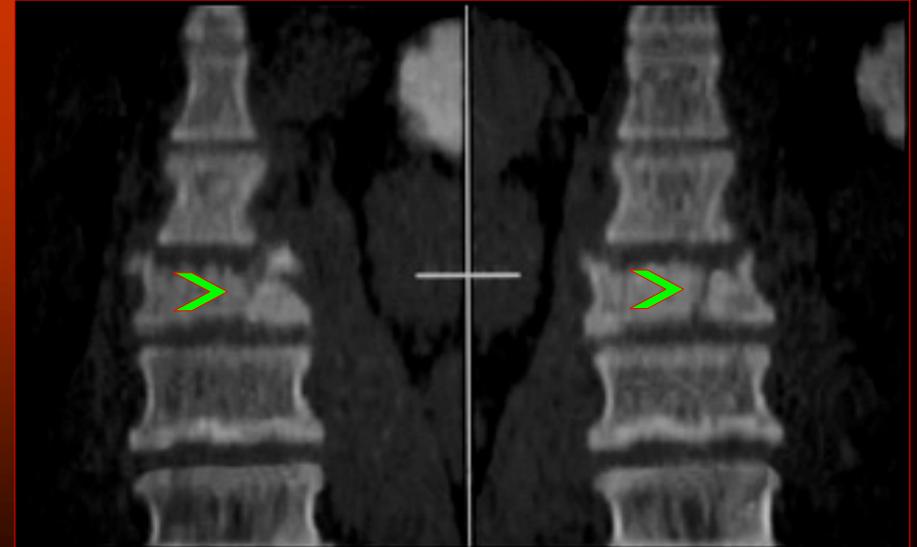
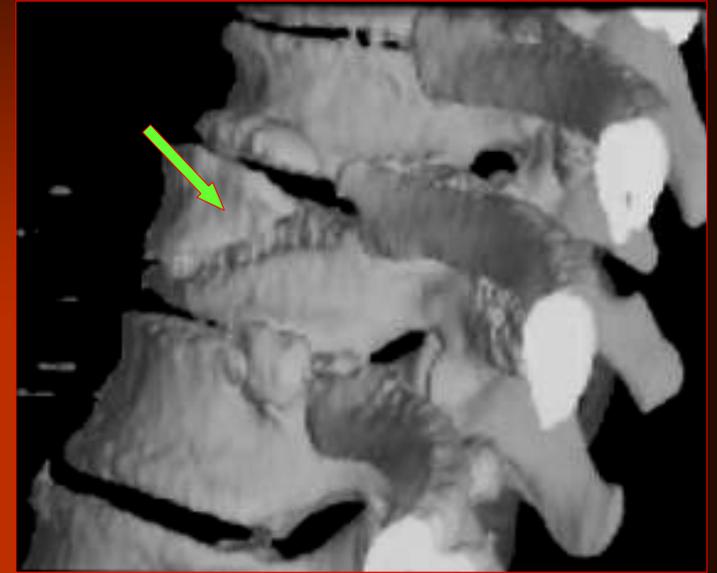
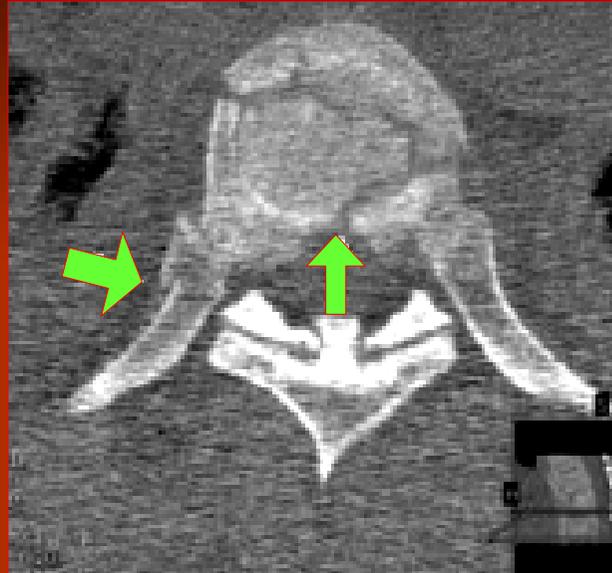
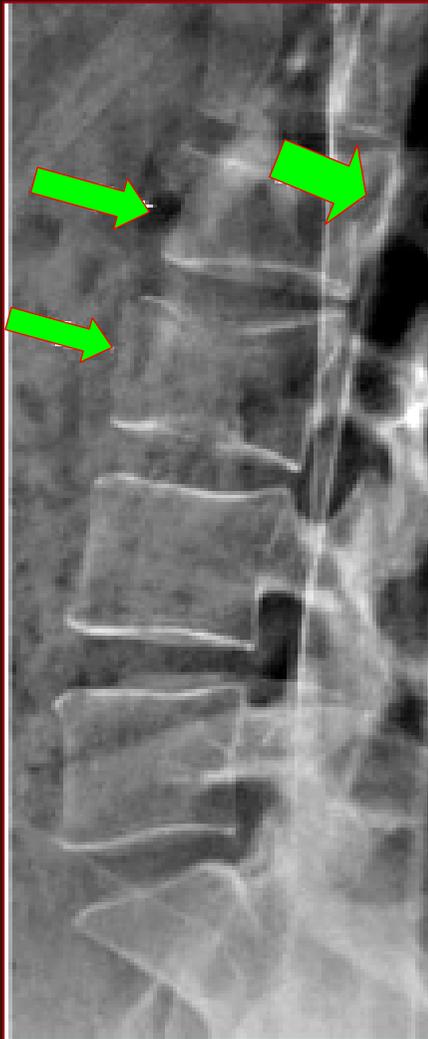
TC > RX

- \* riconoscimento di frammenti ossei dislocati
- \* dimostrazione di fratture dei peduncoli e delle lamine
- \* studio di distretti di difficile valutazione con esame RX

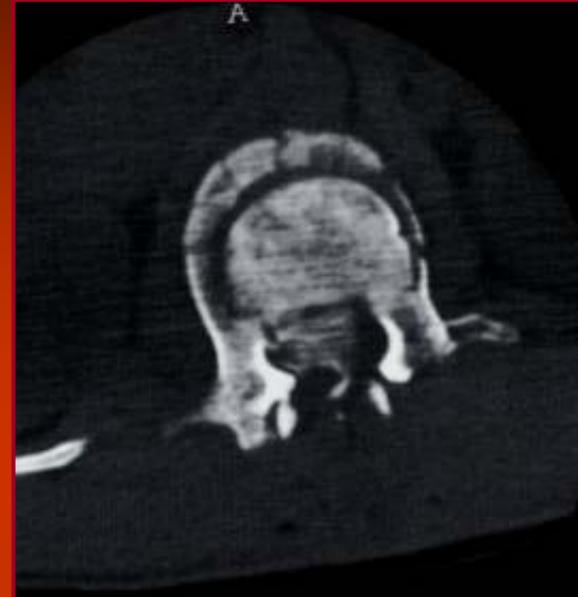
# *TC: DETTAGLIO*



# *TC: PRECISA DEFINIZIONE DELLA RIMA DI FRATTURA*



# ***TC:*** **ESATTA DEFINIZIONE DEI FRAMMENTI OSSEI**



**ESATTA DEFINIZIONE DEI FRAMMENTI OSSEI INTRACANALARI**



***TC: FRATTURE ANCHE COMPOSTE DELL'ARCO POSTERIORE***



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# *TC: PANORAMICITÀ*



RX → TC

## EVIDENZA DI FRATTURA



**RX** → **TC**

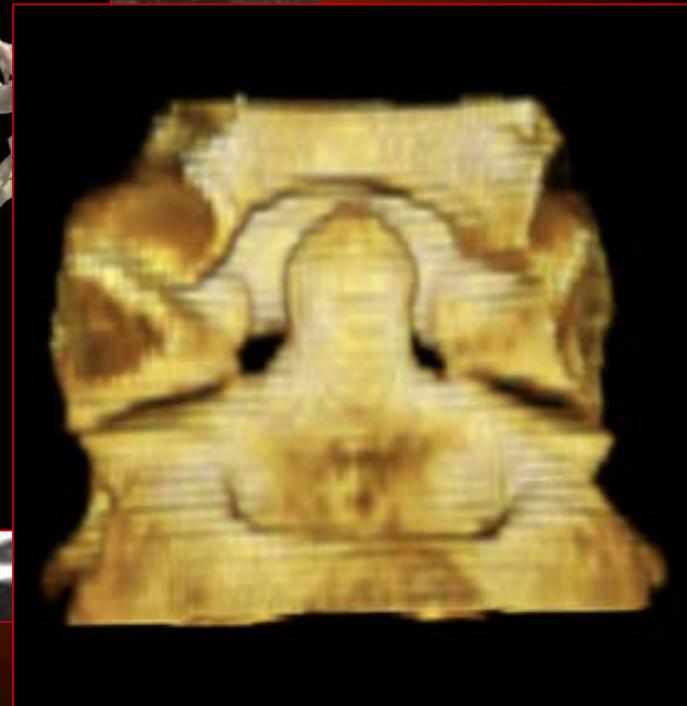
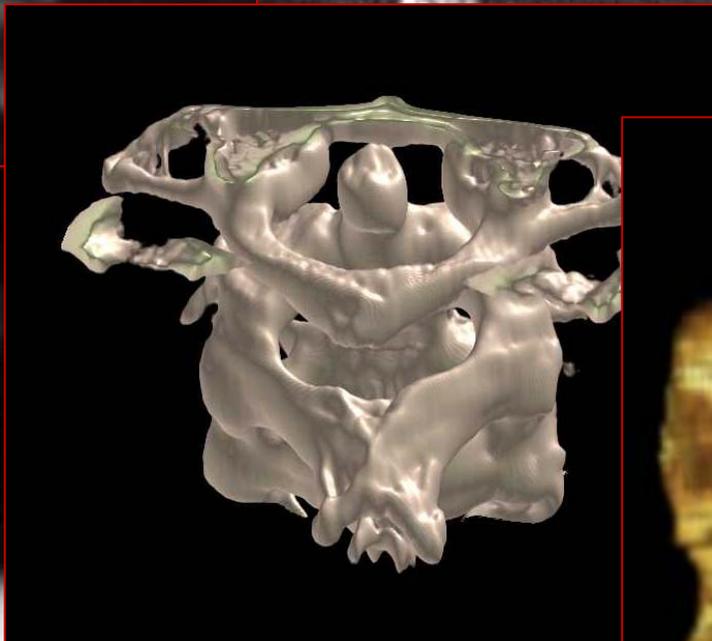
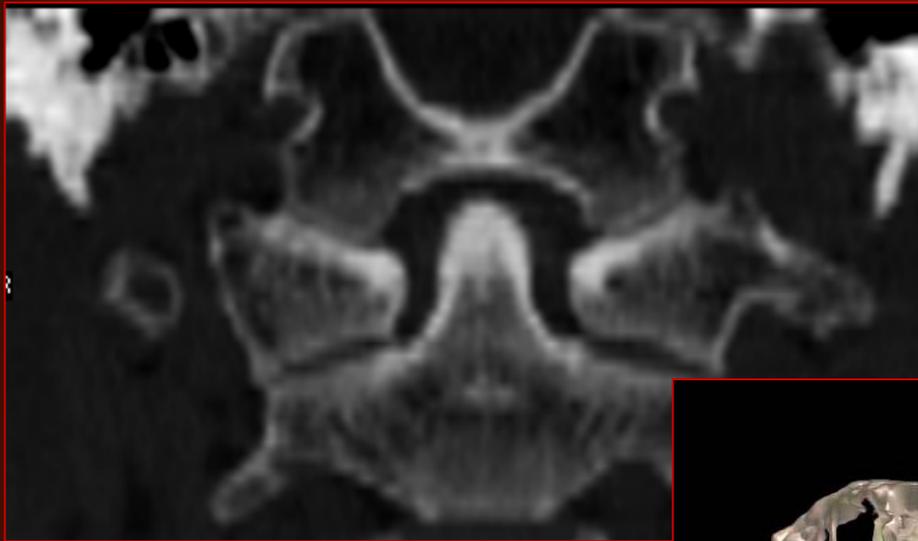
## SOSPETTA FRATTURA DEL SACRO



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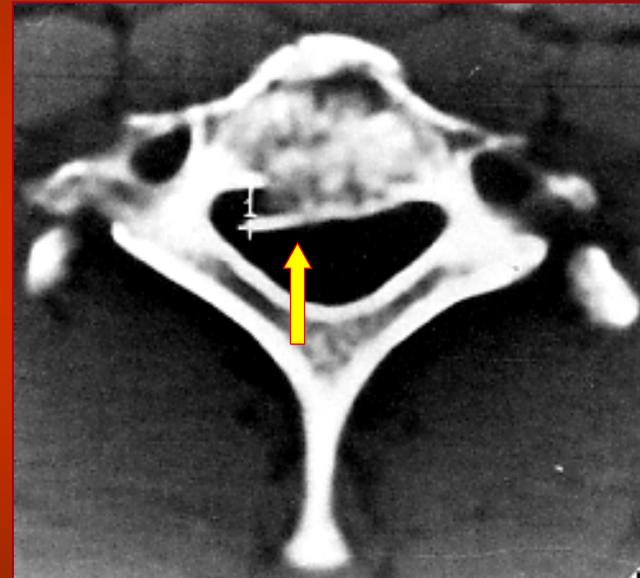
RX → TC

GIUNZIONE O-V



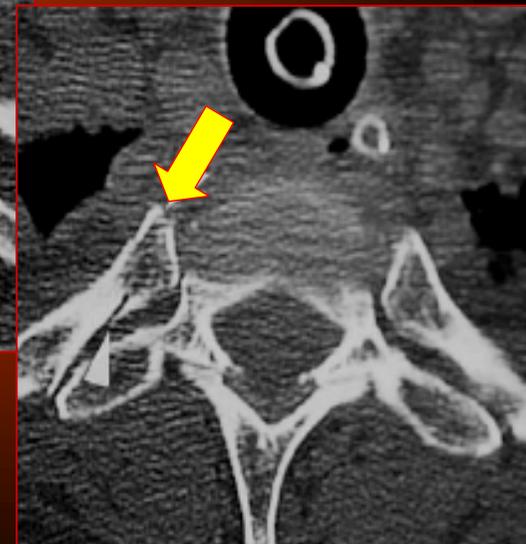
**RX** → **TC**

**SOSPETTA FRATTURA GIUNZIONE CERVICO-DORSALE**



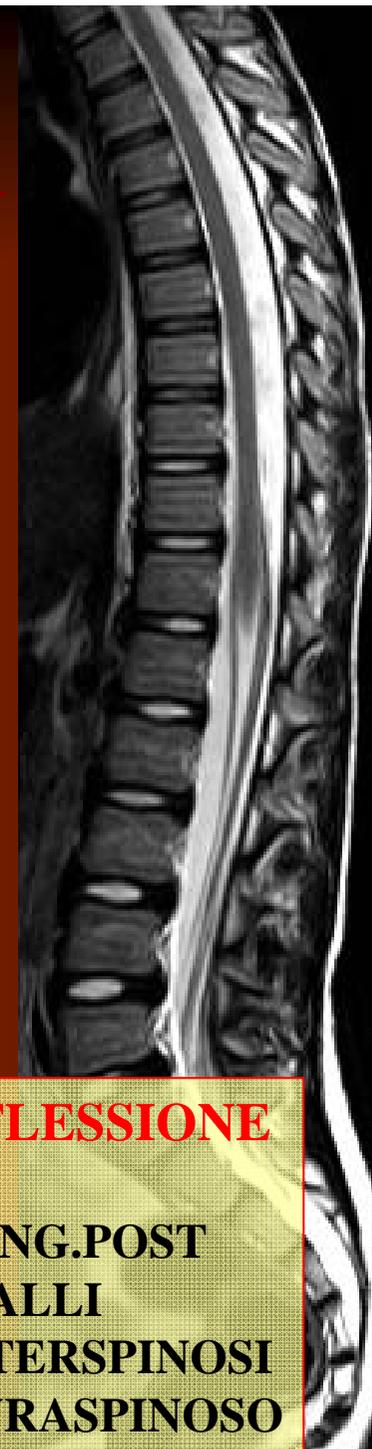
**RX** → **TC**

**SOSPETTA FRATTURA GIUNZIONE CERVICO-DORSALE**



# INDAGINI NEURORADIOLOGICHE

Radiologia convenzionale  
Tomografia computerizzata  
**Risonanza Magnetica**



**LESIONI TRAUMATICHE  
DEL CONTENENTE**

- VERTEBRE
- DISCHI INTERSOMATICI
- LEGAMENTI

➤ RO  
➤ ER

**DA IPER**

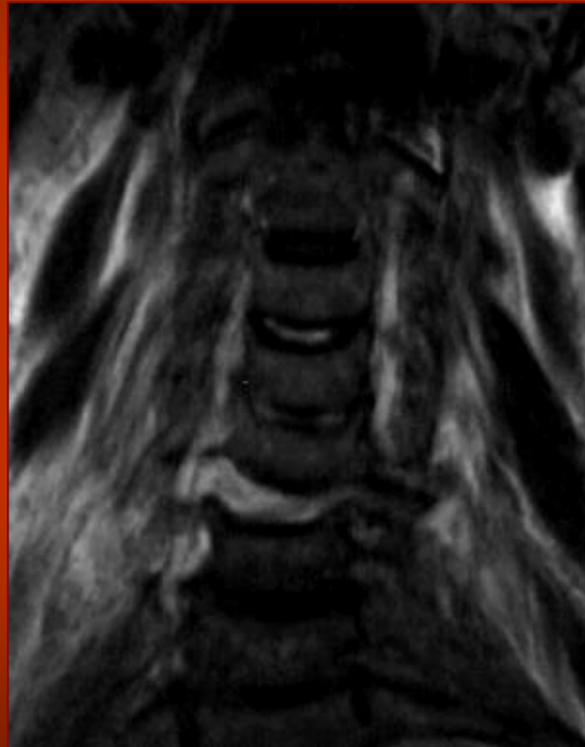
➤ LEG.



**DA IPERFLESSIONE**

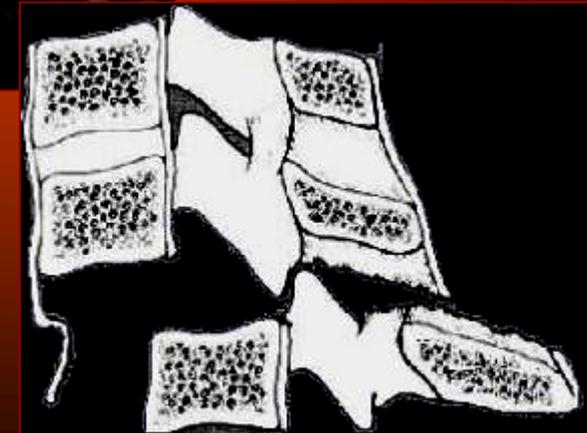
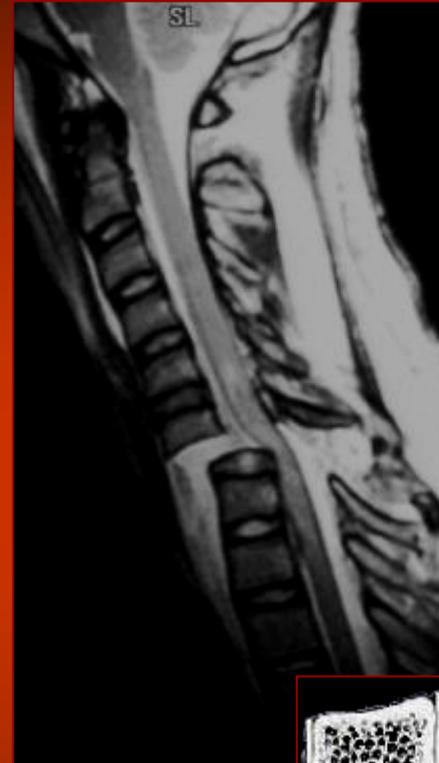
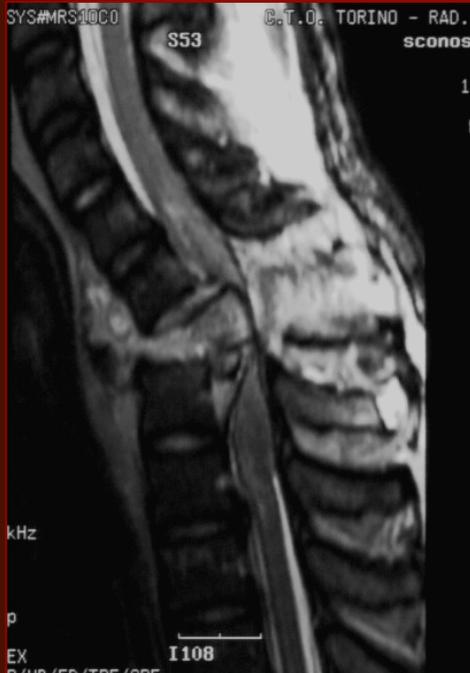
- LEG. LONG.POST
- LEG. GIALLI
- LEG. INTERSPINOSI
- LEG SOVRASPINOSO

# *RM: ROTTURA ED ERNIA DISCALE*



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# *RM: LESIONI DEI LEGAMENTI*



# CLASSIFICAZIONE

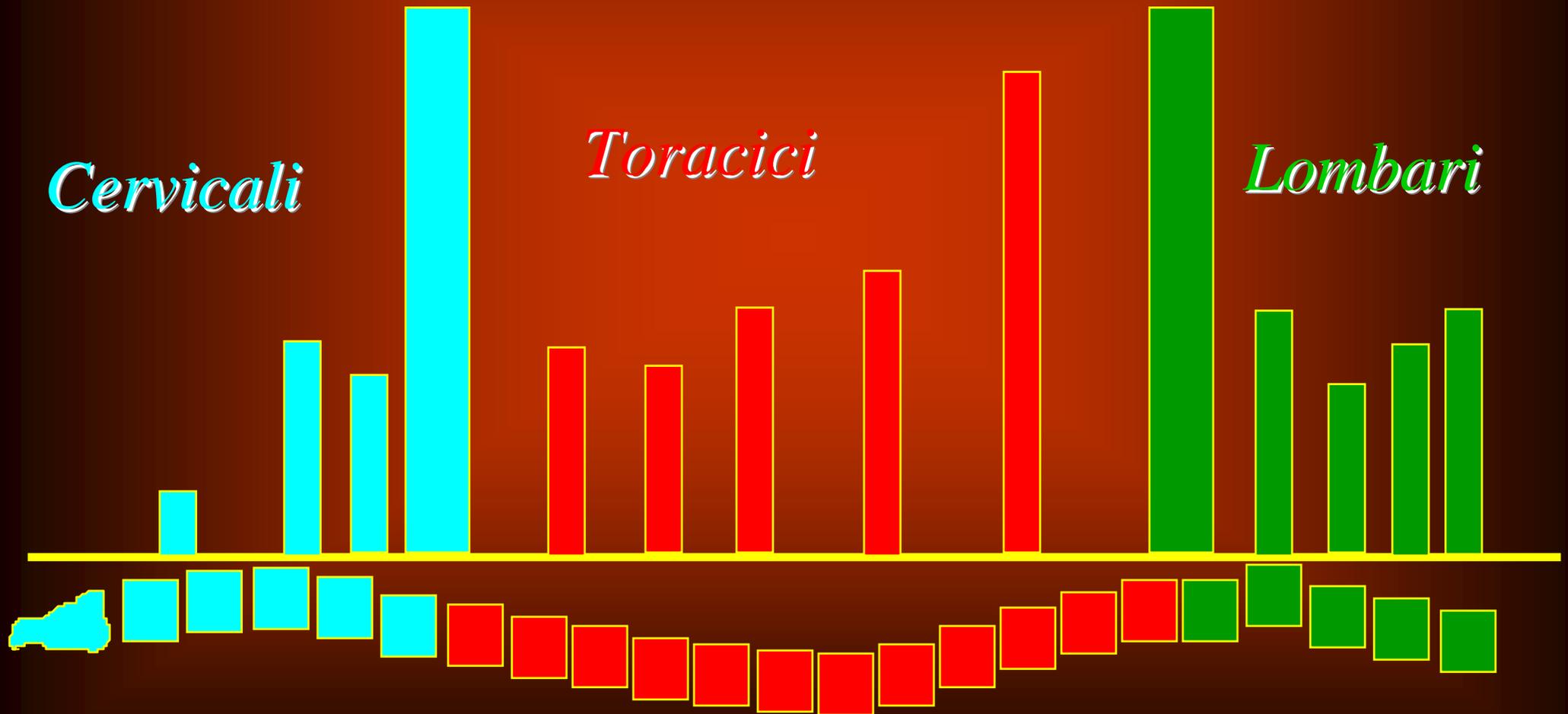
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- ◆ LOCALIZZAZIONE ANATOMICA
- ◆ INSTABILITÀ
- ◆ MECCANISMO LESIVO

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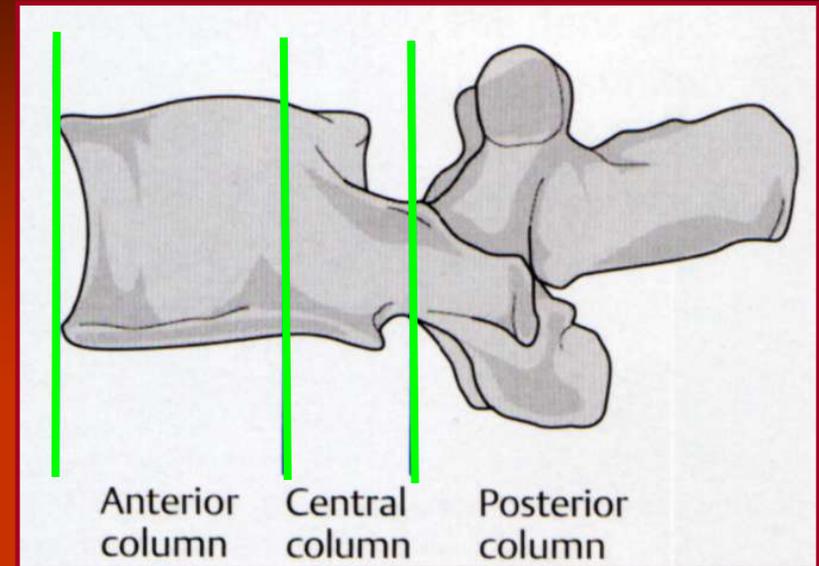
# LOCALIZZAZIONE ANATOMICA

## TOPOGRAFIA



# STABILITA' DELLA COLONNA

- capacità di mantenere l'integrità sotto stress fisiologici
- dipende dall'integrità delle strutture ossee e legamentose
- **modello di DENIS**



## COLONNA ANTERIORE, MEDIA E POSTERIORE

una lesione traumatica è instabile quando coinvolge più di una colonna

# STABILITA' DELLA COLONNA

## •COLONNA ANTERIORE

- LLA
- META' ANTERIORE DEL CORPO
- META' ANTERIORE DELL'ANULUS FIBROSUS

## •COLONNA MEDIA

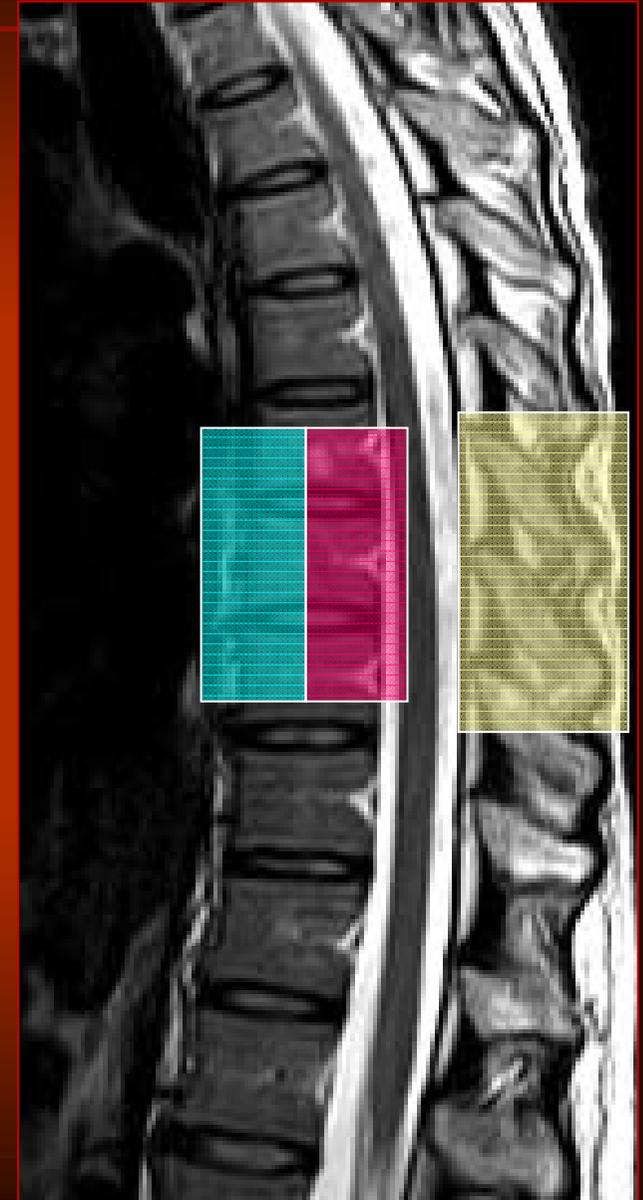
- LLP
- META' POSTERIORE DEL CORPO
- META' POSTERIORE DELL'ANULUS FIBROSUS

## •COLONNA POSTERIORE

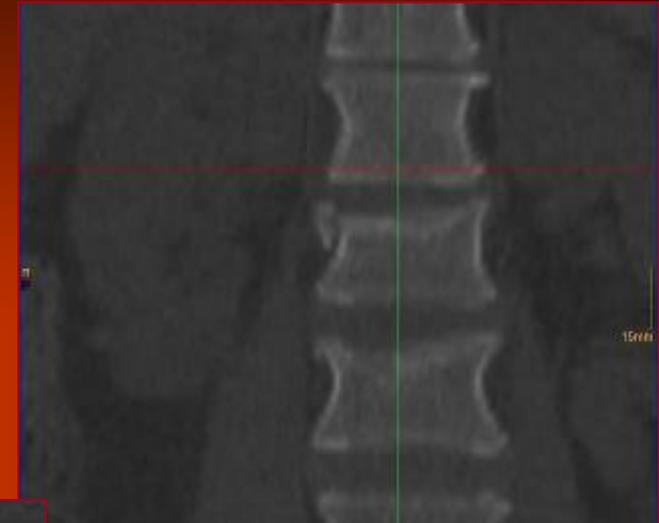
ARCO POSTERIORE

FACCETTE ARTICOLARI

LEGAMENTI

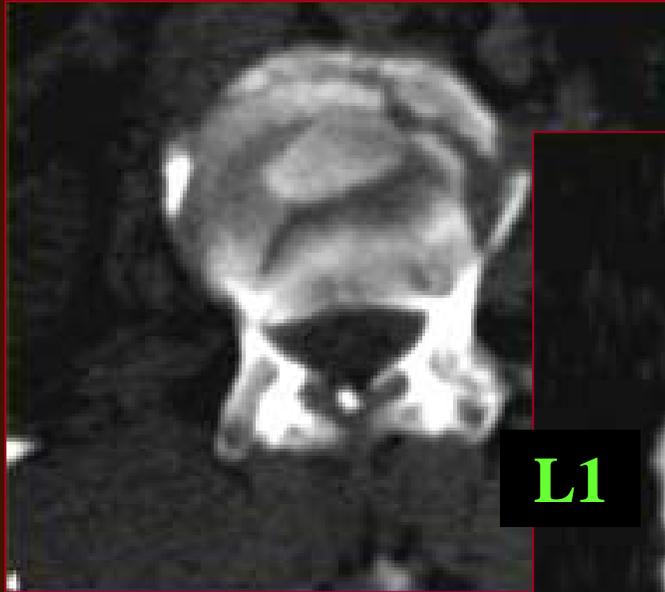


# COLONNA ANTERIORE

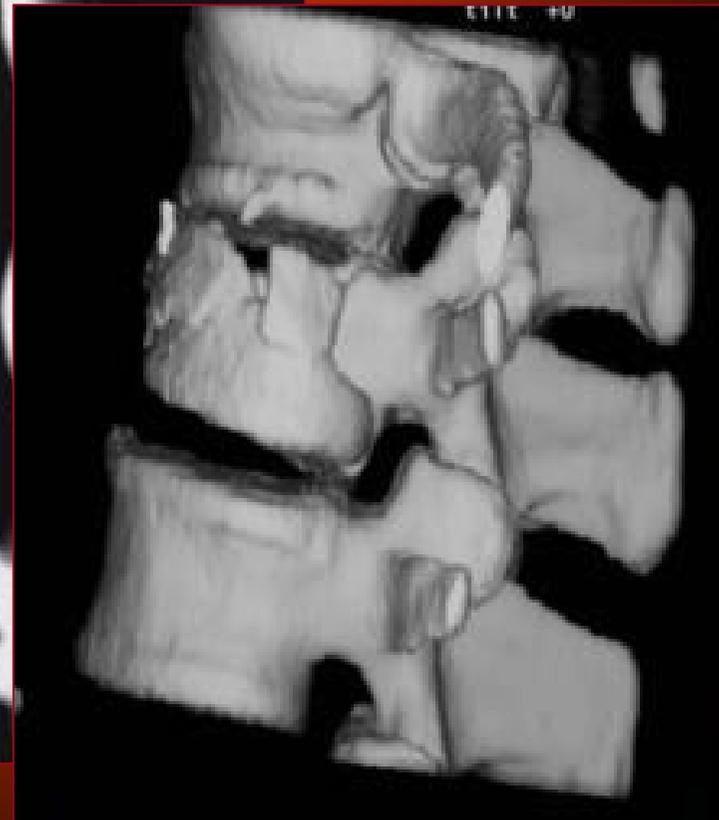


- **DUPLICE FRATTURA SOMATICA DA COMPRESSIONE**
- **DISTACCO DI FRAMMENTO DEL MURO ANTERIORE**
- **CANALE VERTEBRALE INTEGRO**

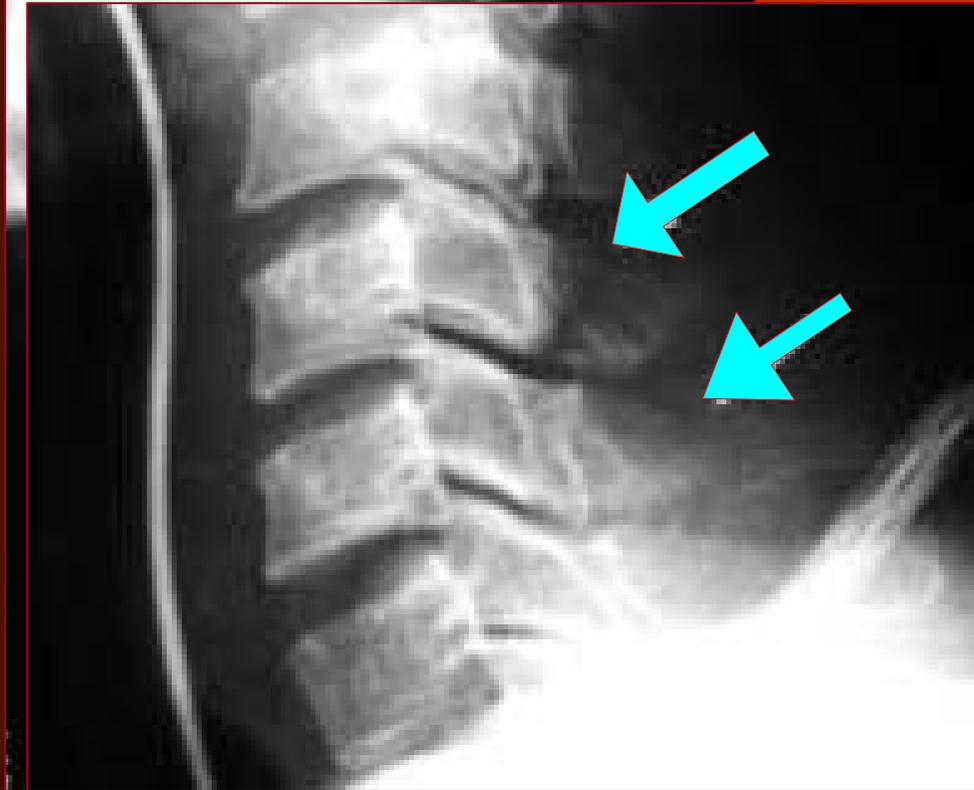
# COLONNA MEDIA



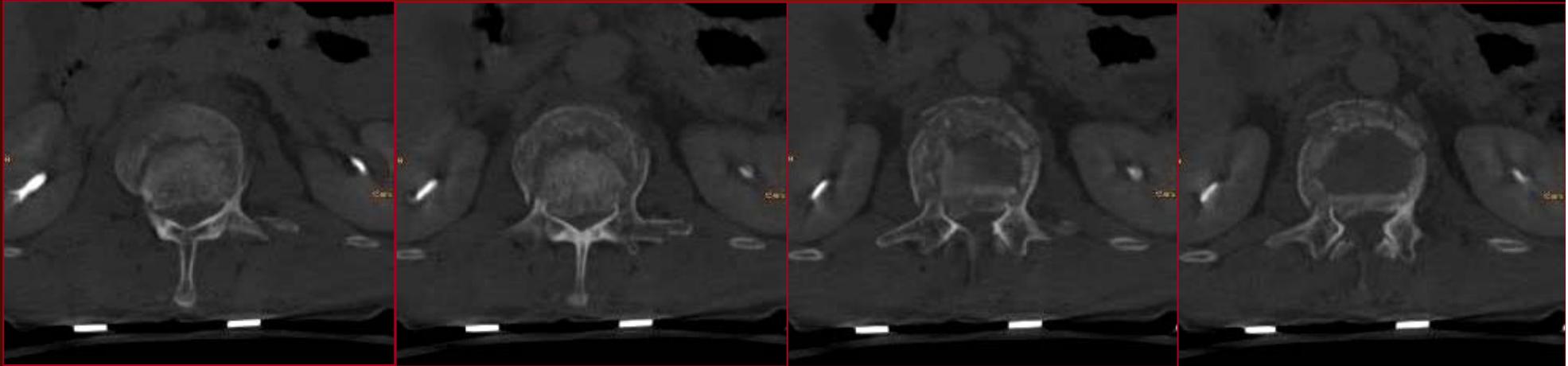
L1



# COLONNA POSTERIORE



# COLONNA ANTERIORE-MEDIA



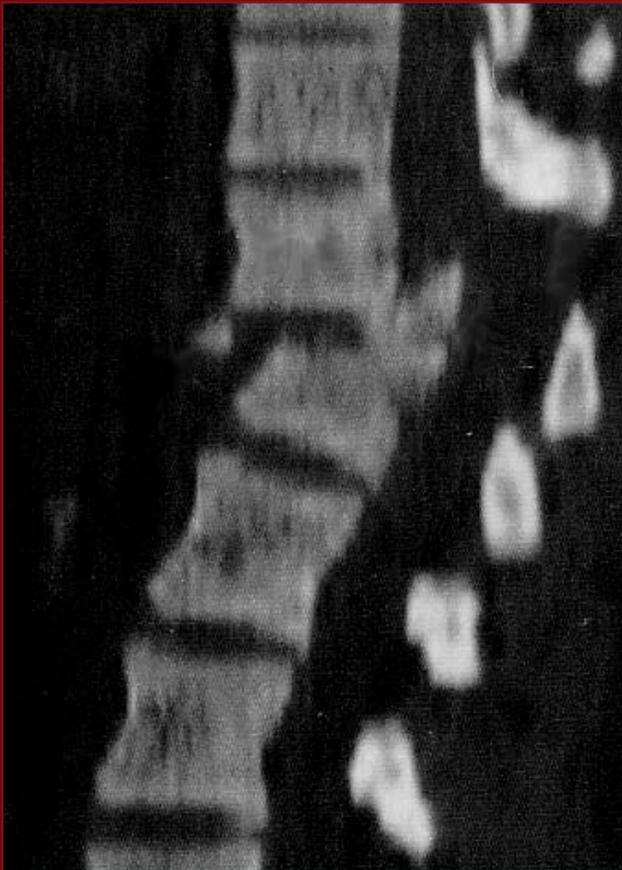
# COLONNA ANTERIORE-MEDIA-POSTERIORE



# SEGNI RADIOLOGICI DI DAFFNER

- ▣ scomposizione vertebrale  $>2\text{mm}$
- ▣ slargamento dello spazio interlaminare ed interspinoso  $>2\text{mm}$
- ▣ slargamento dello spazio articolare interapofisario, disallineamento delle articolazioni, perdita di contatto articolare tra le faccette contigue
- ▣ distruzione del margine posteriore del corpo vertebrale
- ▣ slargamento dello spazio interpenduncolare

## ***SEGNI RADIOLOGICI DI DAFFNER***



scomposizione vertebrale  $>2\text{mm}$

distruzione del margine posteriore del corpo vertebrale

## ***SEGN I RADIOLOGICI DI DAFFNER***



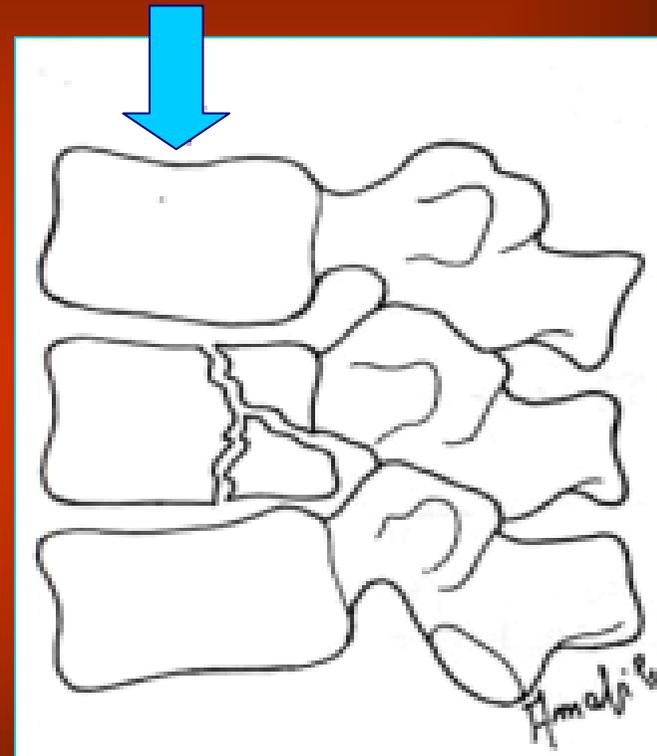
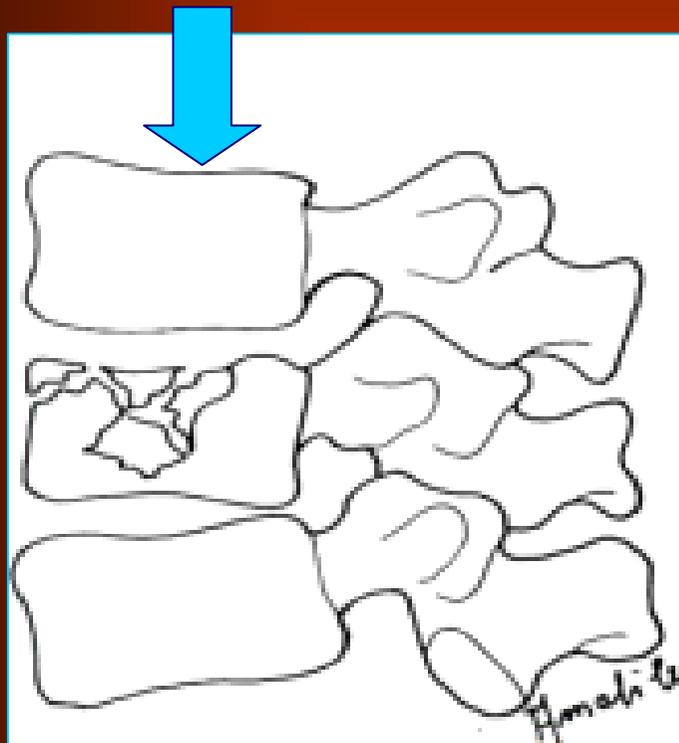
**slargamento dello spazio interlaminare ed interspinoso >2mm  
slargamento dello spazio articolare interapofisario, disallineamento delle articolazioni,  
perdita di contatto articolare tra le faccette contigue**

# MECCANISMO LESIVO

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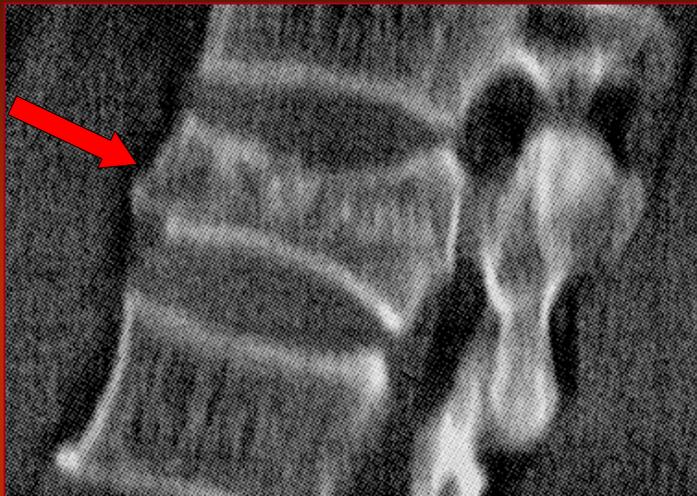
- **Compressione assiale**
- **Flessione**
- **Estensione**
- **Rotazione**

# LESIONE DA COMPRESSIONE ASSIALE



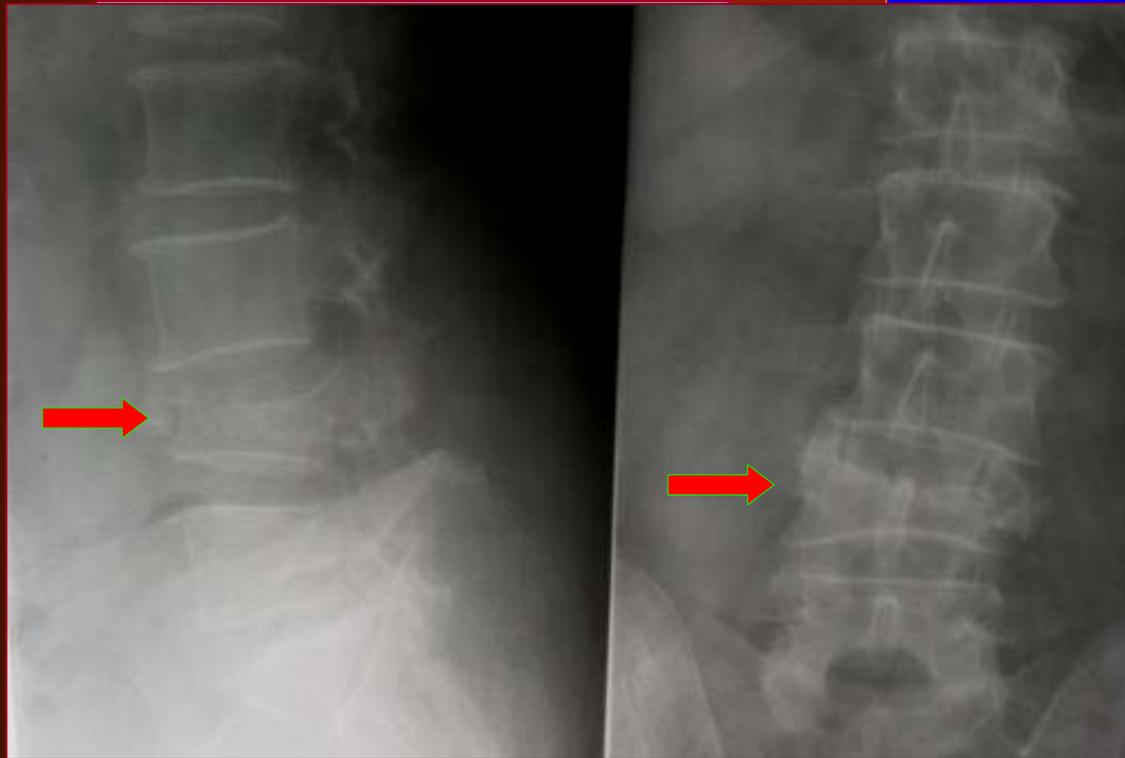
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# COMPRESSIONE ASSIALE

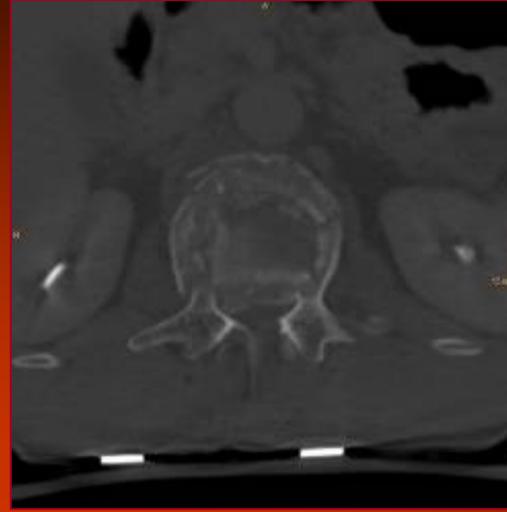
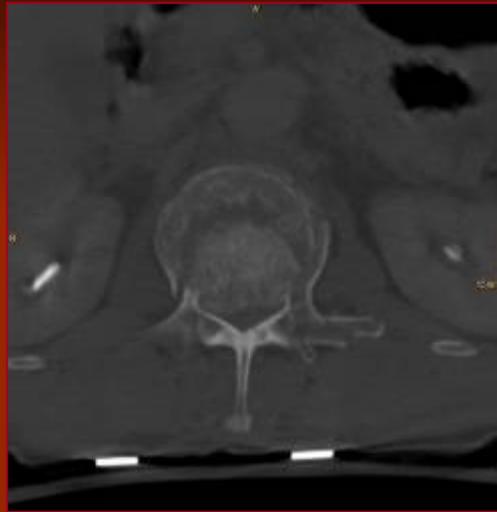
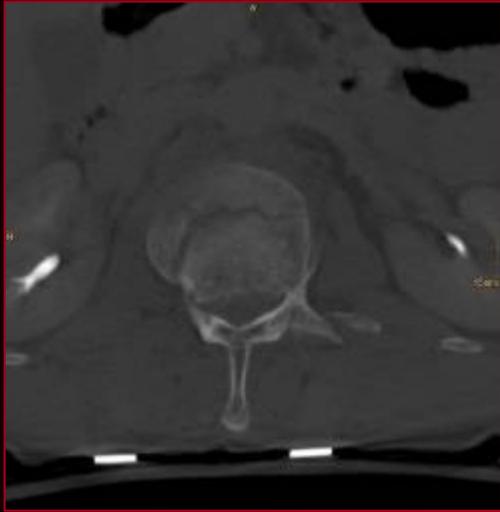


- *colonna anteriore*
- *canale vertebrale integro*

# COMPRESSIONE ASSIALE



# COMPRESSIONE ASSIALE



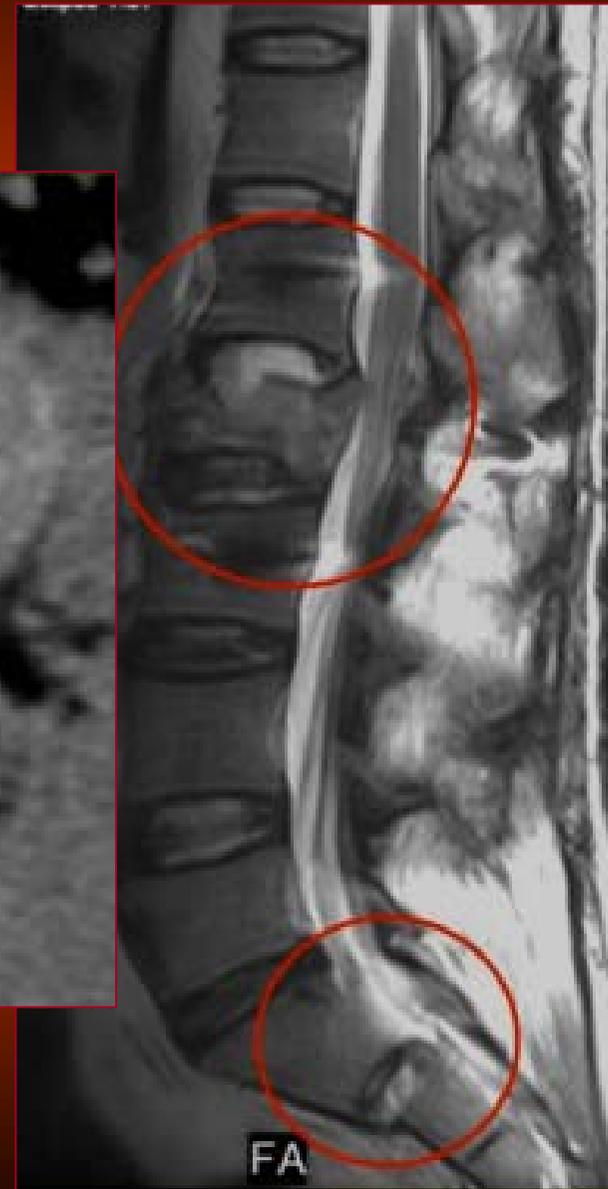
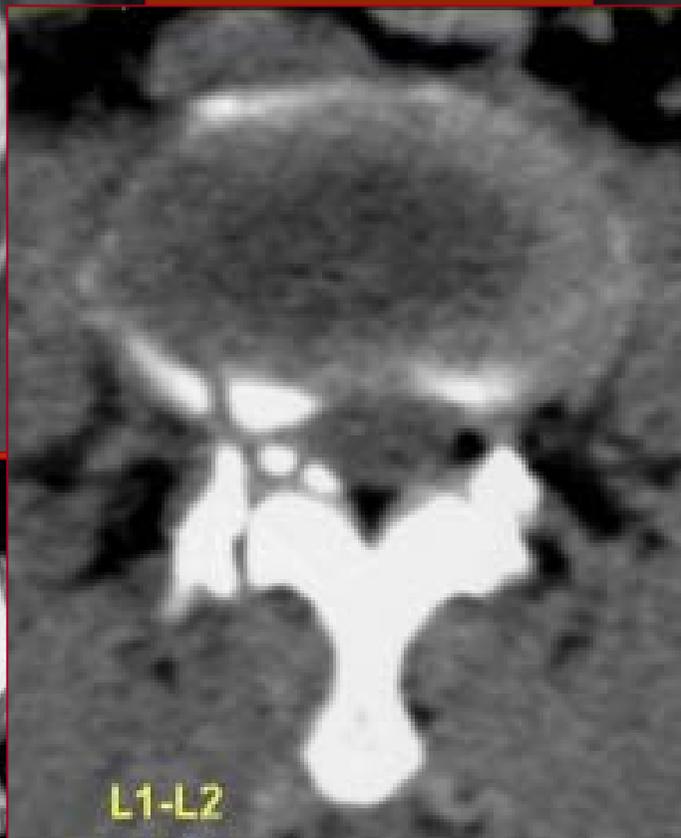
➤ *frattura somatica di maggiore gravità*

➤ *frattura apofisi spinosa*

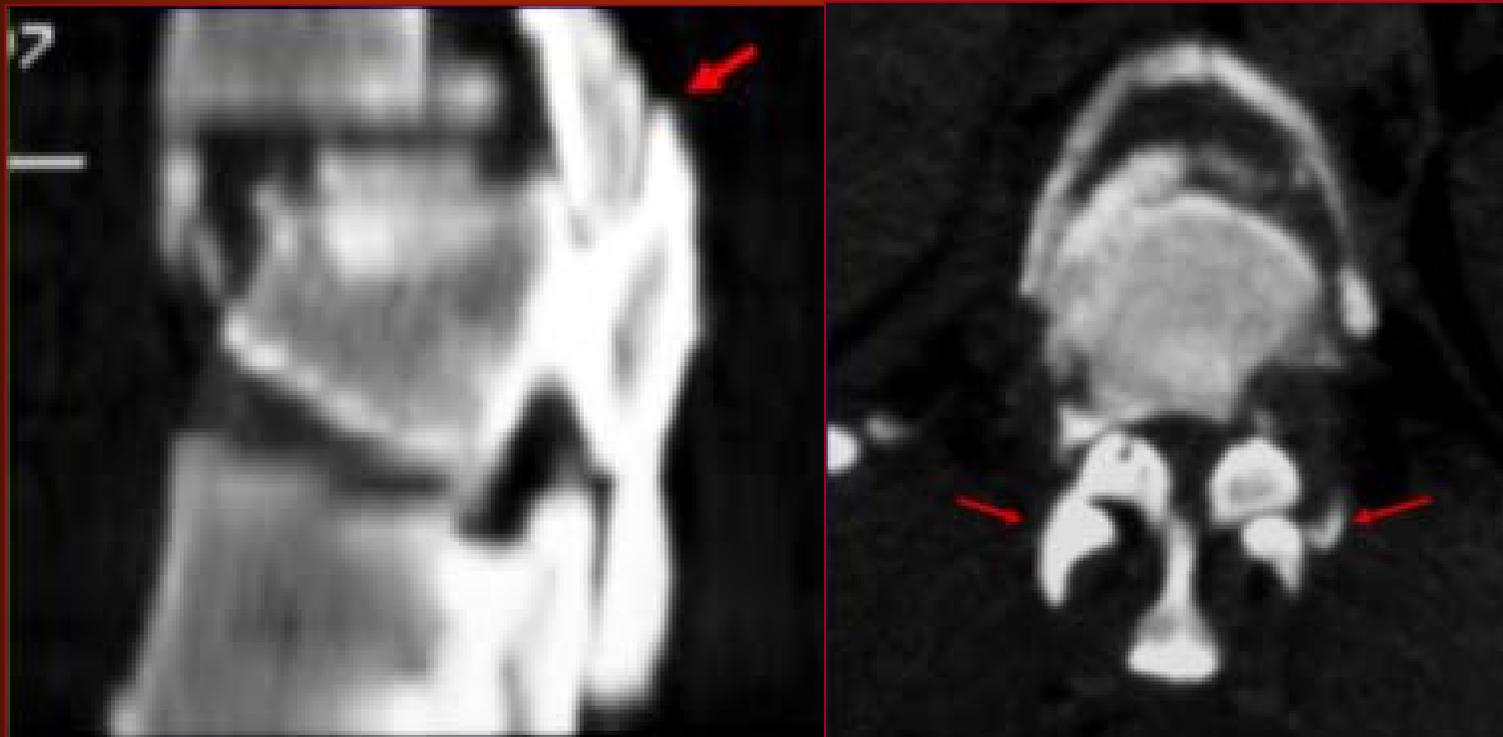
➤ *canale vertebrale compromesso*



# COMPRESSIONE ASSIALE

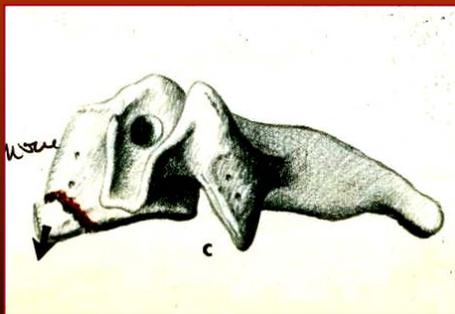


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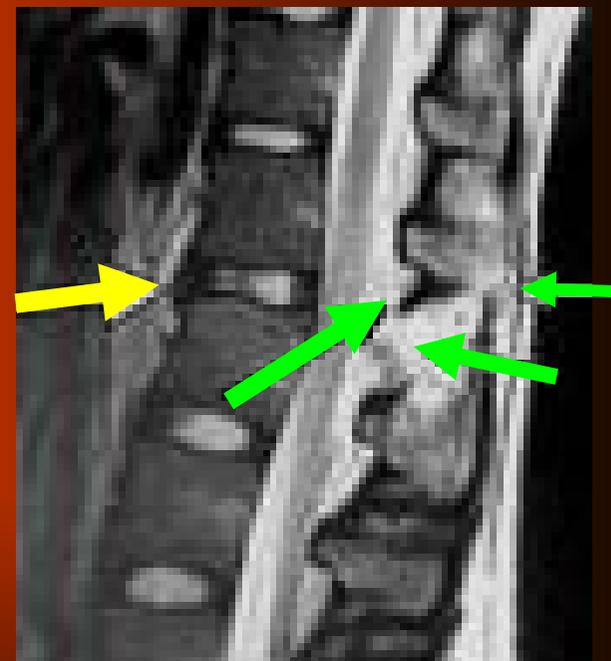


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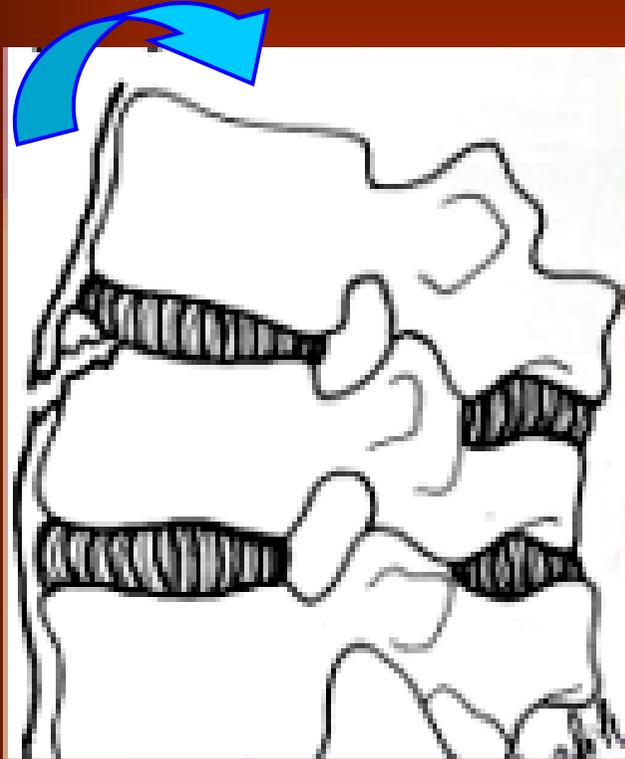
# LESIONE DA IPERFLESSIONE



# LESIONE DA IPERFLESSIONE



# LESIONE DA IPERESTENSIONE

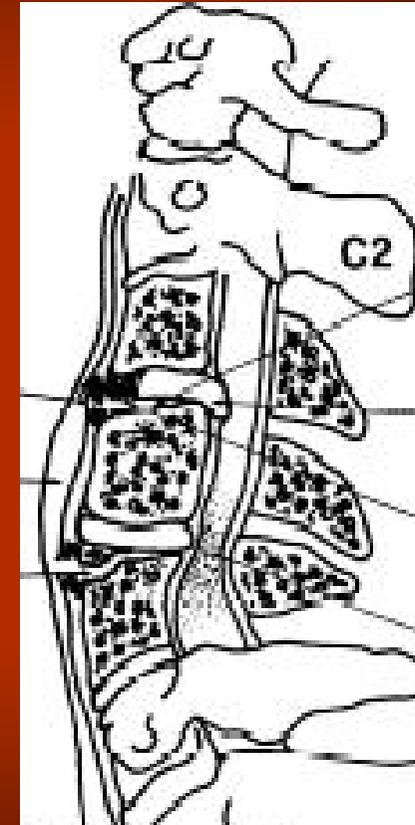
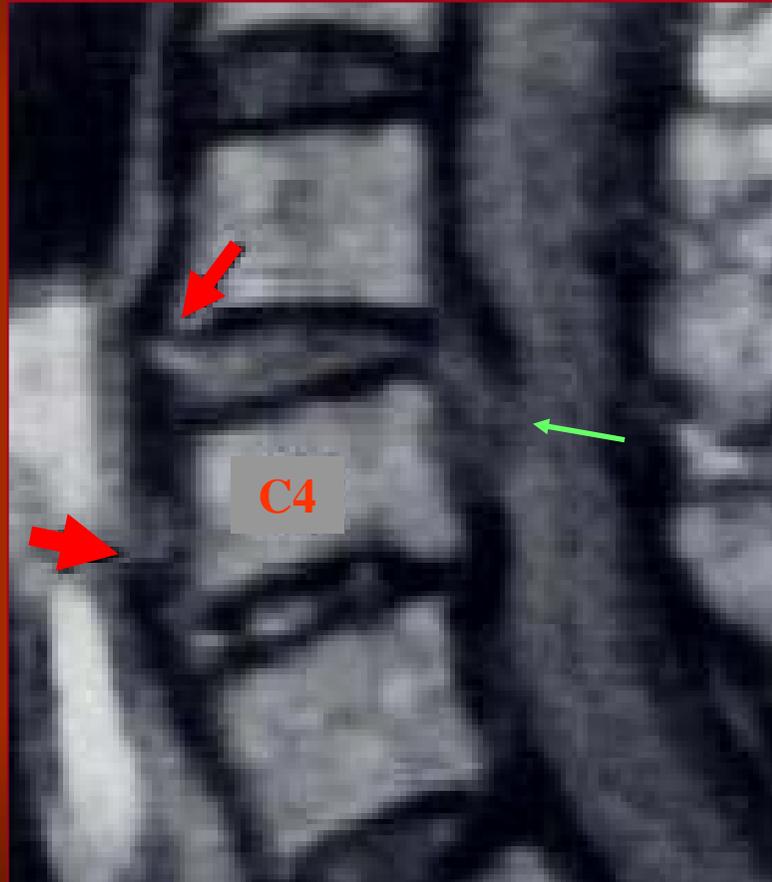
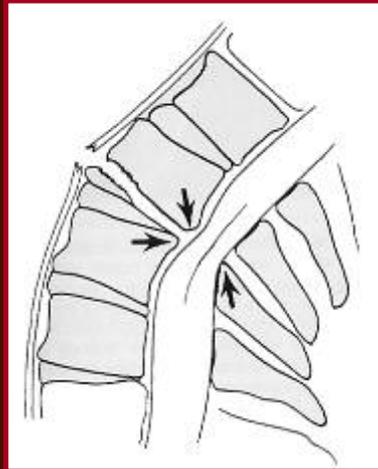


[www.fisiokinesiterapia.biz](http://www.fisiokinesiterapia.biz)

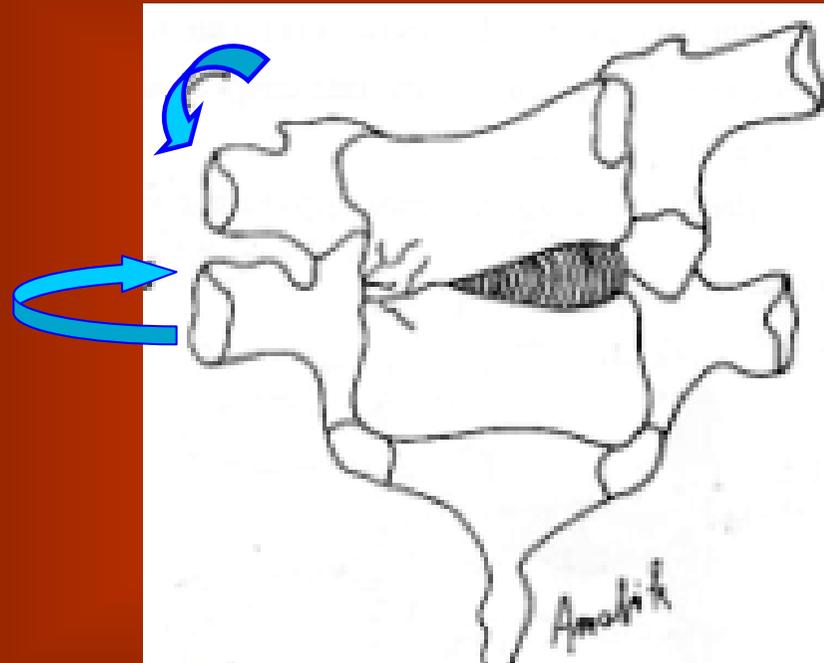
# LESIONE DA IPERESTENSIONE



# LESIONE DA IPERESTENSIONE

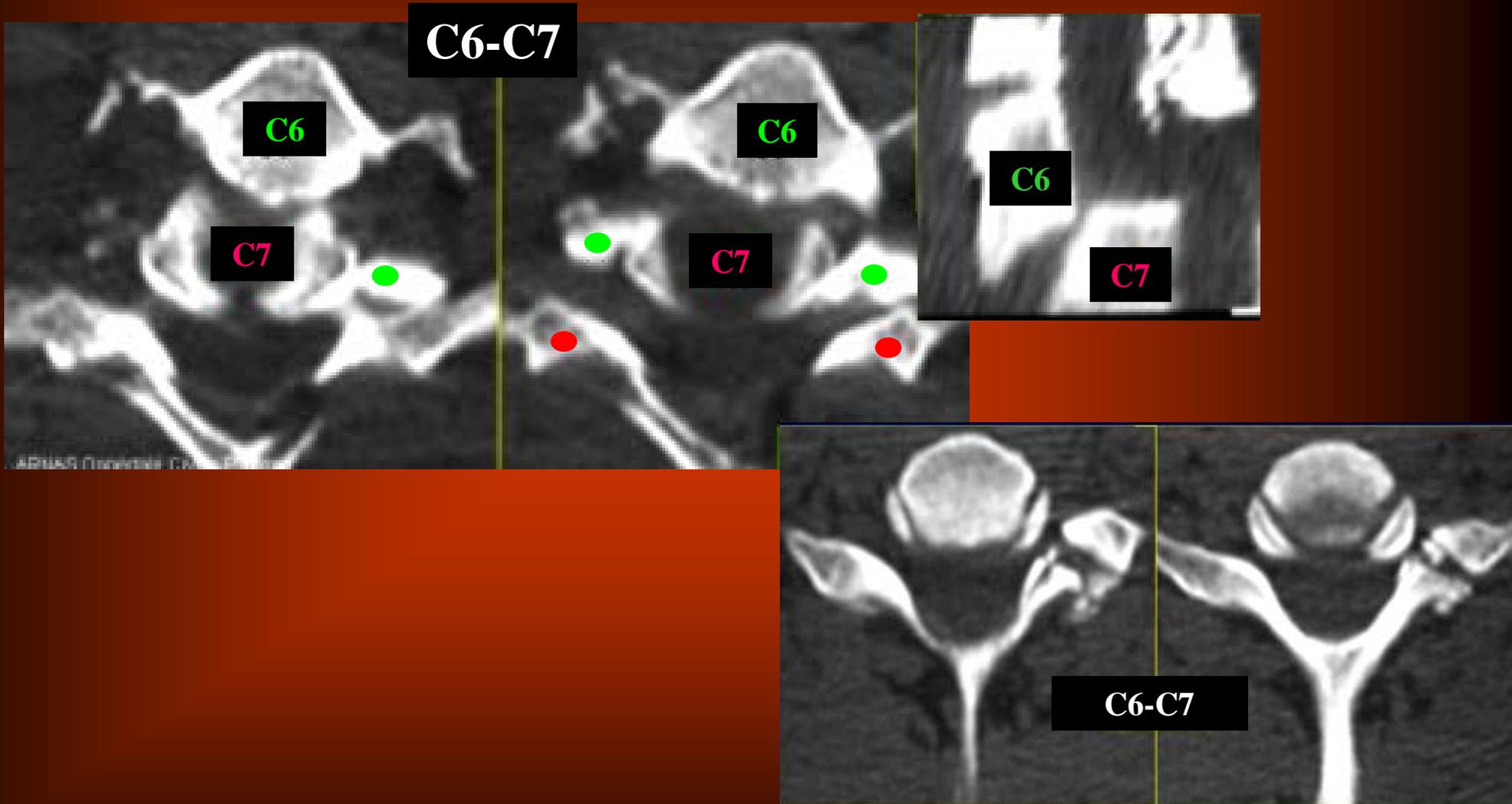


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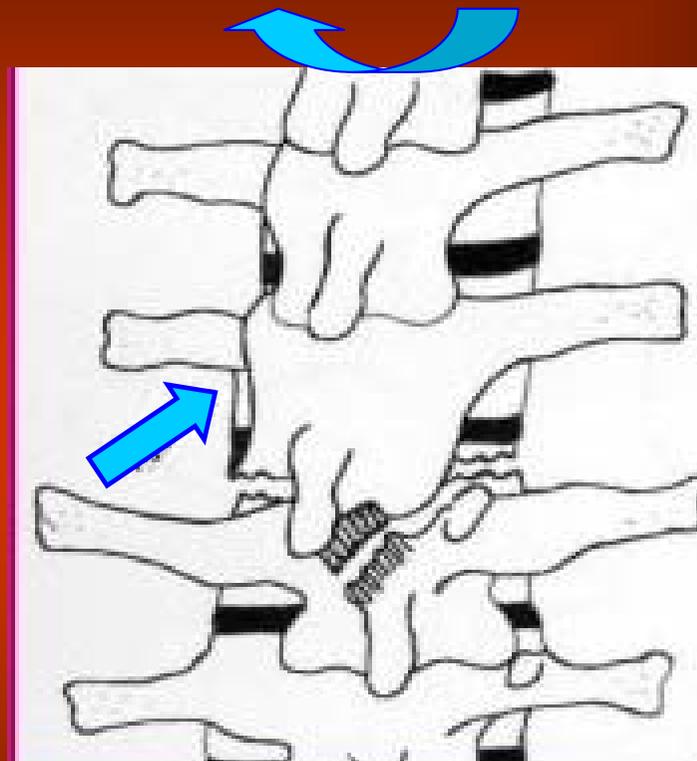
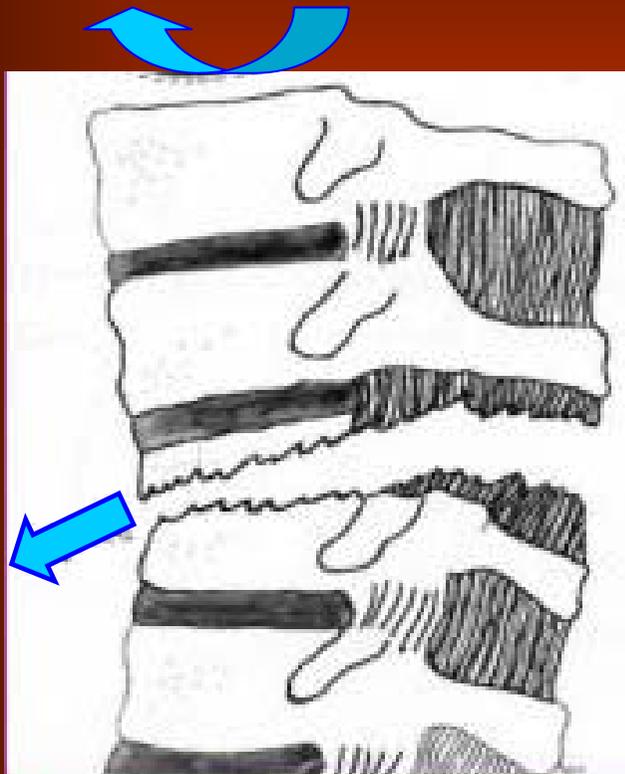


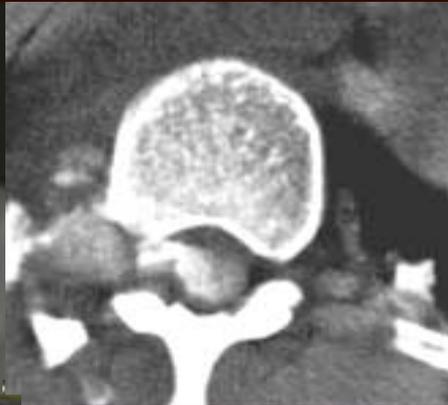
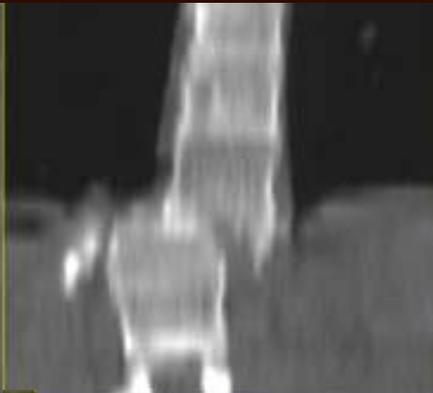
[www.fisiokinesiterapia.biz](http://www.fisiokinesiterapia.biz)

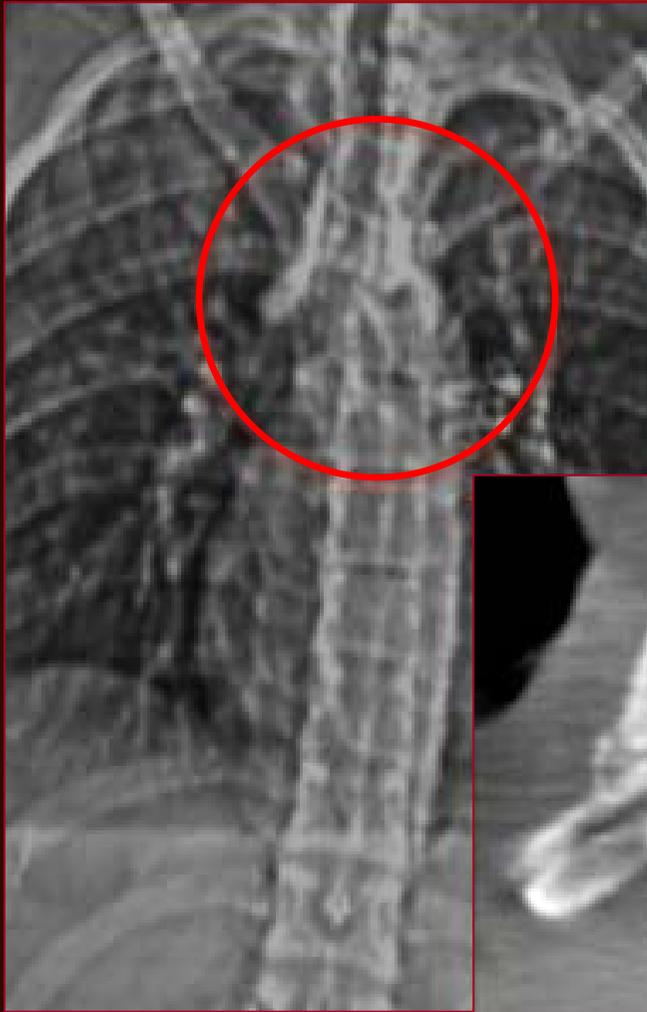
# LESIONE DA ROTAZIONE



# TRAUMA DA TAGLIO







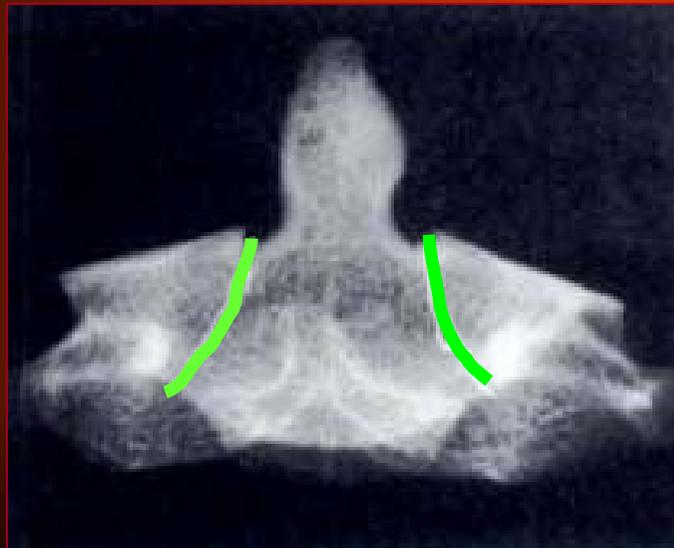
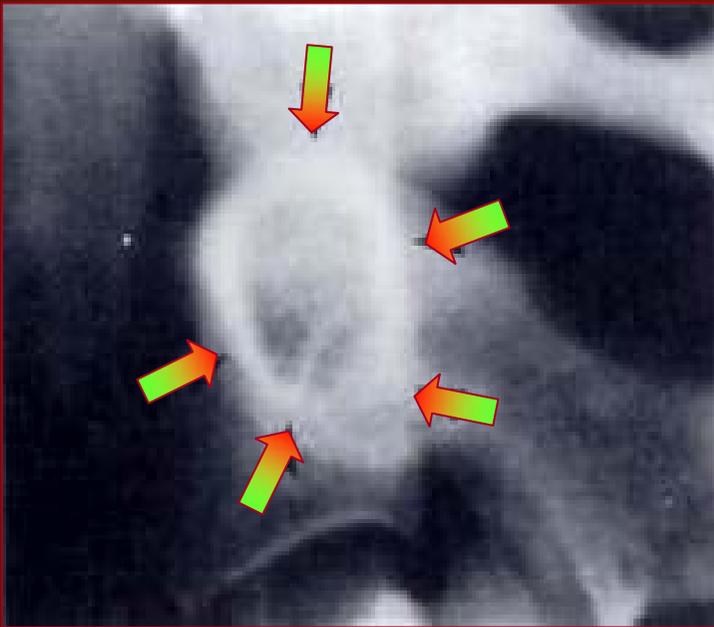
# TRATTO CERVICALE SUPERIORE



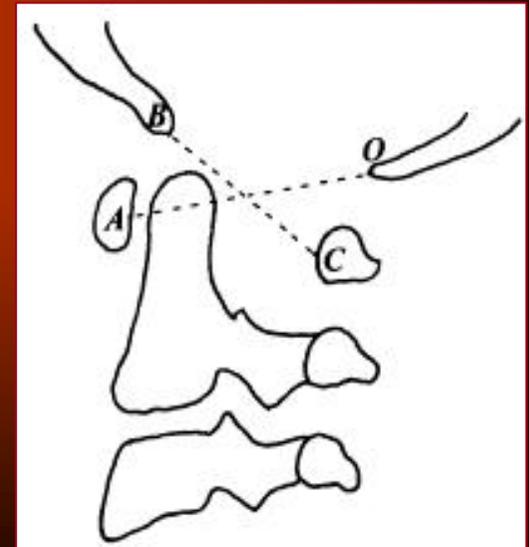
- Spazio retrofaringeo >4-5 mm
- Distanza atlo odontoidea >2-3 mm
- Anello di HARRIS
- Integrità corticali dente e C2



# ANELLO DI HARRIS



# LUSSAZIONE OCCIPITO-ATLANTOIDEA

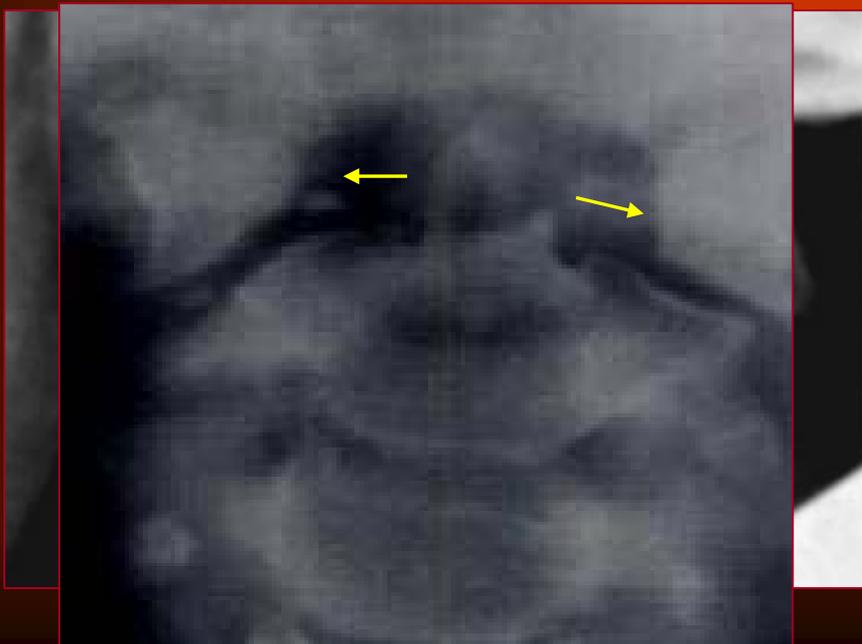
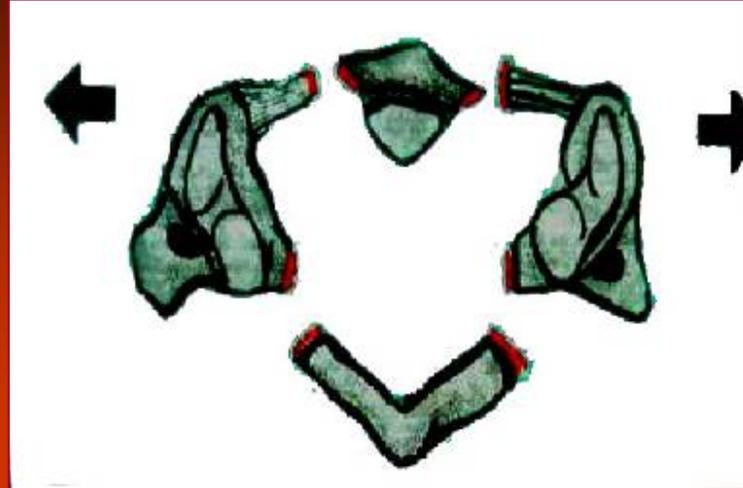
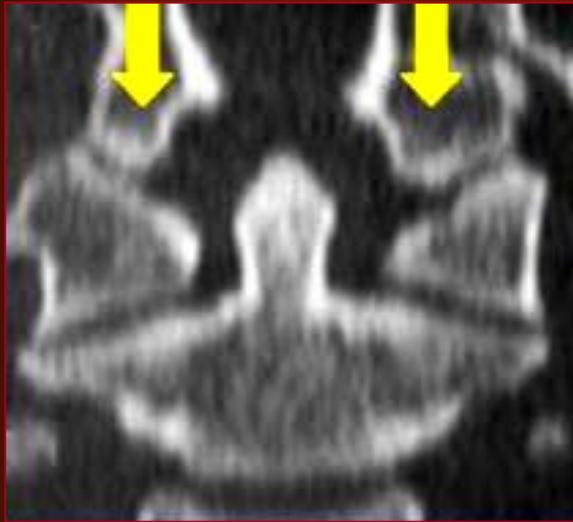


**BC/AO**

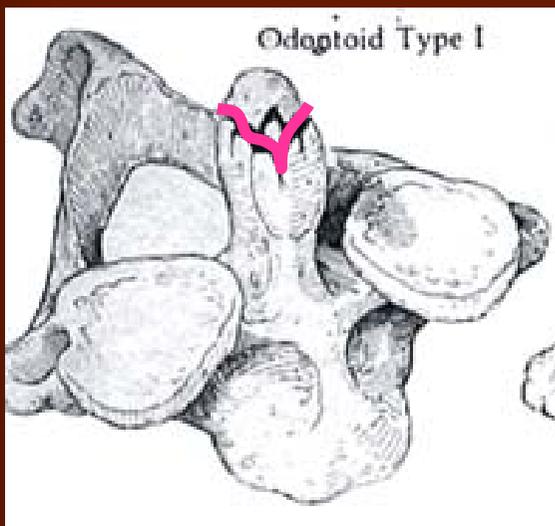
**0,77 +/- 0,09**

**>/= 1,15**

# FRATTURE DELL'ATLANTE: JEFFERSON

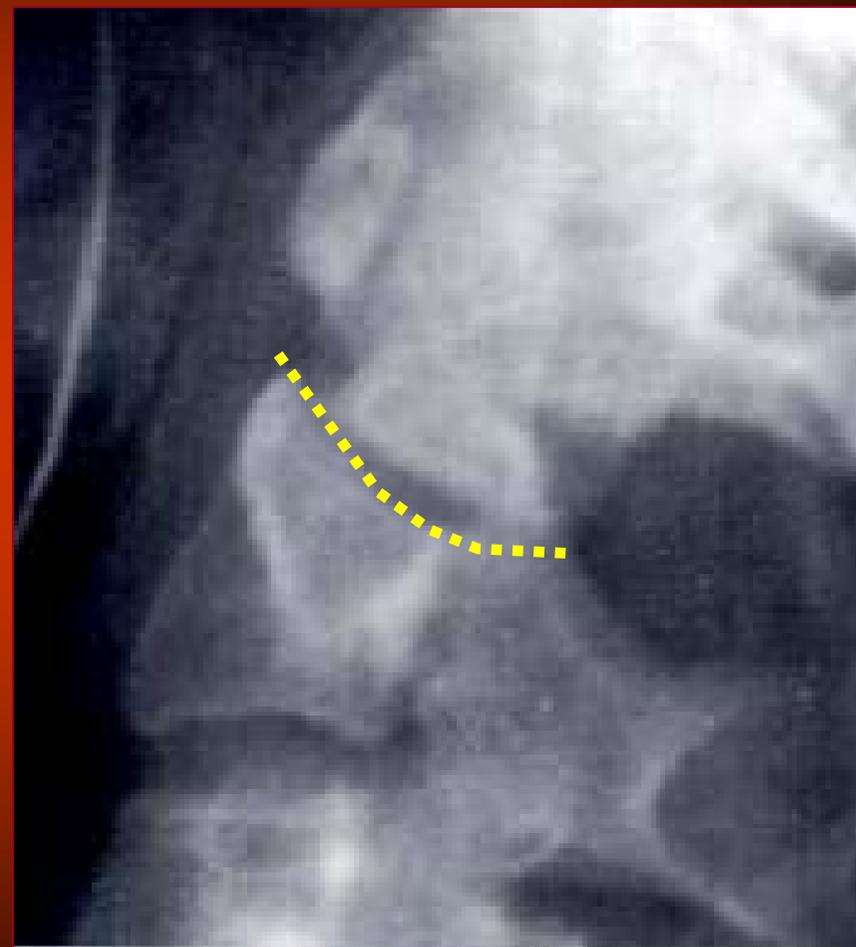
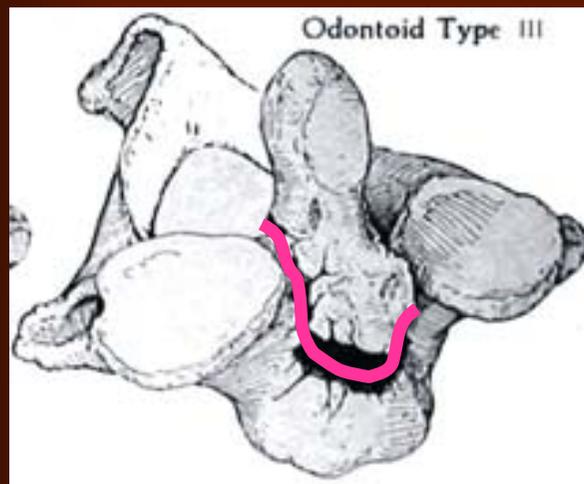


# FRATTURA DEL DENTE DELL'EPISTROFEO: TIPO I





## FRATTURA DEL DENTE DELL'EPISTROFEO: TIPO III



## FRATTURA DEL DENTE DELL'EPISTROFEO: TIPO III



# FRATTURA DI HANGMANN

