Sistema Sanitario Regione Lombardia

Malattia Dolore e Rete Territoriale

Milano 23-24 Marzo 2017

Dolore muscoloscheletrico: quando e quale chirurgia?

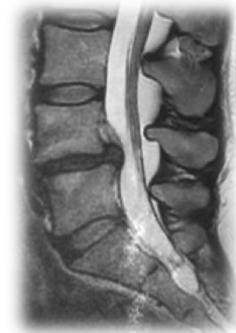
P.Giorgi-G.R.Schirò

S.C. di Ortopedia e Traumatologia

ASST Grande Ospedale metropolitano Niguarda

MILANO

La patologia del disco……



E’ la più frequente patologia della colonna vertebrale

Può colpire i vari tratti (cervicale,dorsale,lombare) anche se il tratto più colpito è il tratto lombare (circa 90% dei casi)

E’ responsabile del 80-90% delle lombalgie

Crock 1970

MAY 16, 1970 THE MEDICAL JOURNAL OF AUSTRALIA 983

Original Articles

A REAPPRAISAL OF INTERVERTEBRAL DISC LESIONS

H. V. CROCK, M.D. (MELBOURNE), F.R.C.S., F.R.A.C.S.[1]

per primo, descrisse la patogenesi del CLBP come non causato da fratture, tumori o infezioni correlando le alterazioni istologiche e biomeccaniche del disco con la lombalgia lamentata dai pazienti

to disc lesions. It should serve to improve clinical management, particularly in the selection of patients for surgical treatment.

arbitrarily reduced or even unexpectedly stopped.

There is no doubt that insurers are confronted with malingerers against whom they must exercise security measures, including the advice of private investigators. These issues are complex, as indeed are the inter-

Weinstein 1988

The Pain of Discography

JAMES WEINSTEIN, DO,* WILLIAM CLAVERIE, MD,† and SALLY GIBSON‡

Lumbar discography is a commonly employed diagnostic tool, but important questions about it remain unre-

the anterior and posterior longitudinal ligaments and in the superficial layers of the annulus fibrosis. More complex nerve endings

descrisse la presenza di nocicettori nel terzo esterno dell'anulus e correlò la degenerazione discale con la stimolazione del dolore lombare

TODAY it remains difficult to understand why pain, the most common symptom in the field of medicine, remains the most difficult to understand. To this end, several investigators of pain have themselves submitted to having their own nerves crushed, cut, or resutured in order to observe and describe their sensory experiences, but none of these investigators has ever agreed with another.[2] The Taxonomy Committee of the International Association for the Study of Pain (1979) defined pain as an

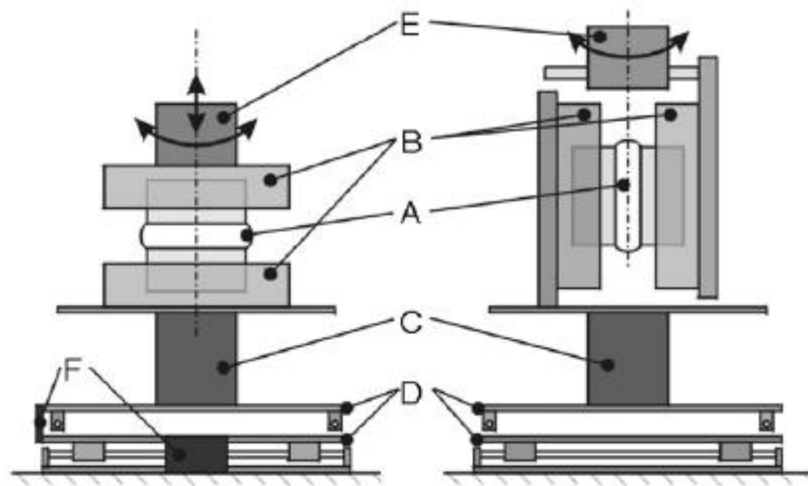
ends by a common ramus communicans. Three types of branches have been found to innervate the lateral surface of the intervertebral disc. One branch emerges from the ventral primary rami, and two branches arise from the rami communicantes. Within each vertebral body and the adjacent cartilaginous end-plates are vascular channels with nerve fibers from the sympathetic trunk serving, in part, a nociceptor function.

It is interesting to speculate on the functional significance of

The role of the nucleus pulposus in neutral zone human lumbar intervertebral disc mechanics

Marco Cannella[a], Amy Arthur[c], Shanee Allen[a], Michael Keane[c], Abhijeet Joshi[a], Edward Vresilovic[b], Michele Marcolongo[a,*]

Journal of Biomechanics 41 (2008) 2104–2111



The relationship between mechanical instability of the disc and a clinically painful disc are worthy of continued study as is the role that the herniated/degenerated nucleus plays in creating pain .

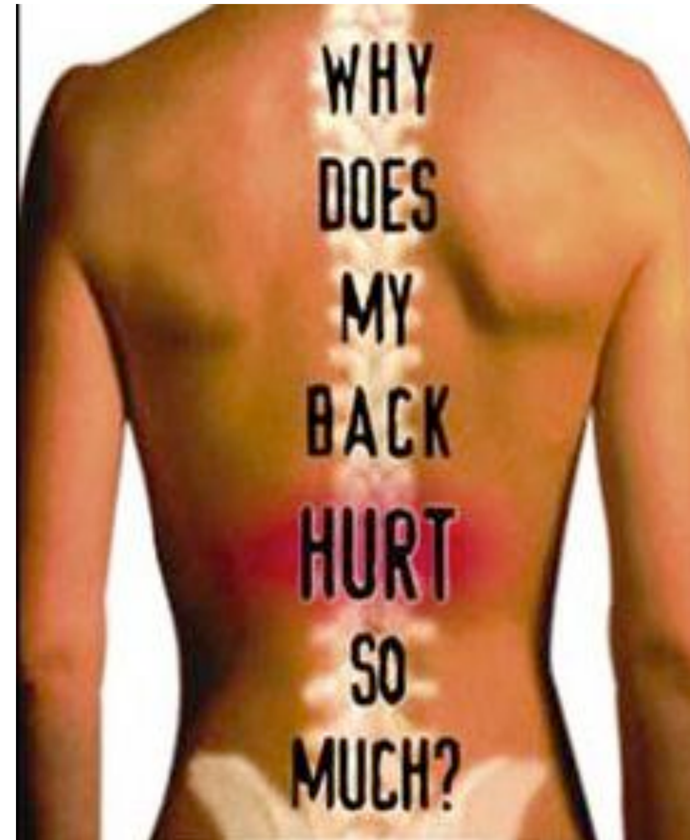
DISCOPATIA

- PATOLOGIA DEGENERATIVA

- EDD Ernia del disco
- DDD discopatia degenerativa
- Spondiloartrosi e rachistenosi
- Spondilolisi / Spondilolistesi

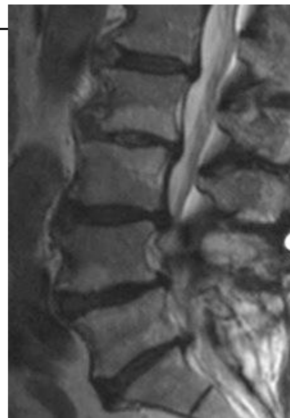
- CON DEFORMITA' VERTEBRALE

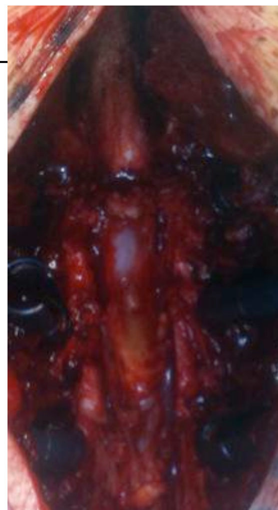
  Discopatia multipla in cifoscoliosi degenerativa dell'adulto

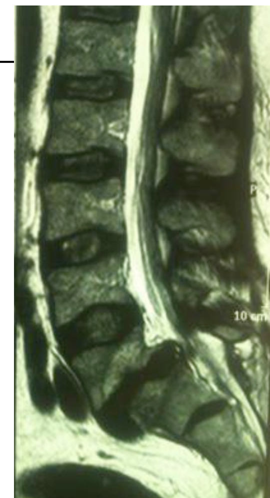


FAILED BACK SURGERY SYNDROME (FBSS)

- ✓ **ERRORE DI DIAGNOSI** (instabilità, discopatie, deformità, patol. psicosociali..)
- ✓ **ERRORE CHIRURGICO** (device chirurgico, instabilità o deformità residue, mancata decompressione…)

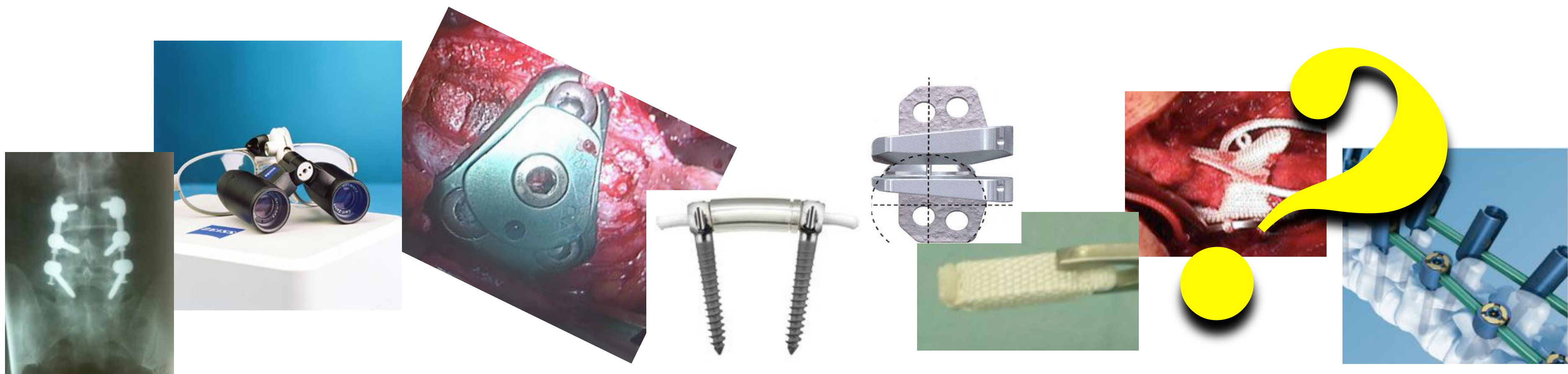






QUANDO LA CHIRURGIA ??

QUALE CHIRURGIA ??

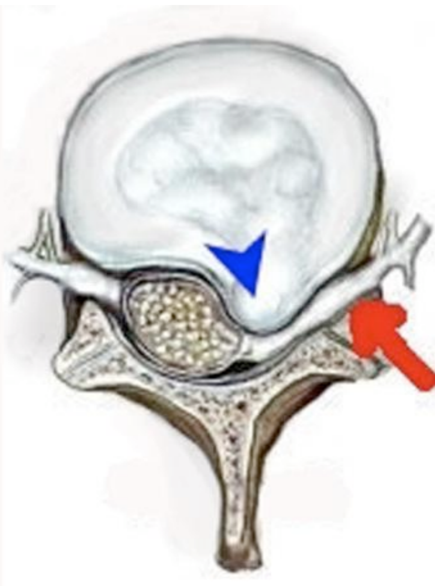


EDD-ERNIA DEL DISCO LOMBARE

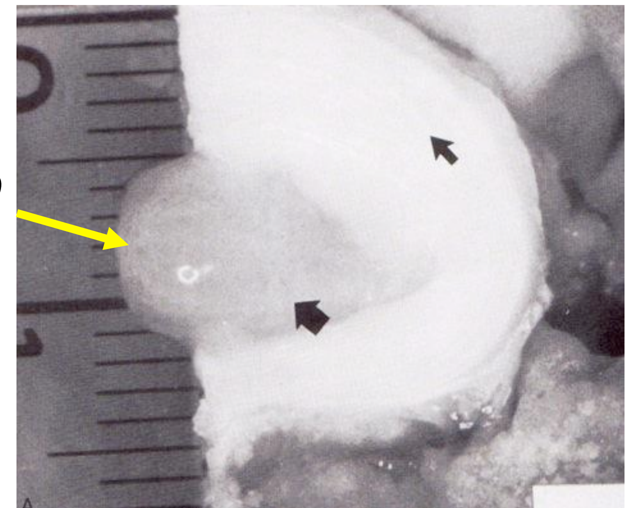
Erniectomia microassistita

Discopatia ⟶ Ernia (EDD)

L'ernia del disco è una manifestazione tipica della degenerazione discale



Nucleo polposo



Strategie terapeutiche

- Riposo
- Fans/Antalgici/Miorilassanti
- Corticosteroidi
- Procedure percutanee
- Fisiochinesiterapia
- CHIRURGIA

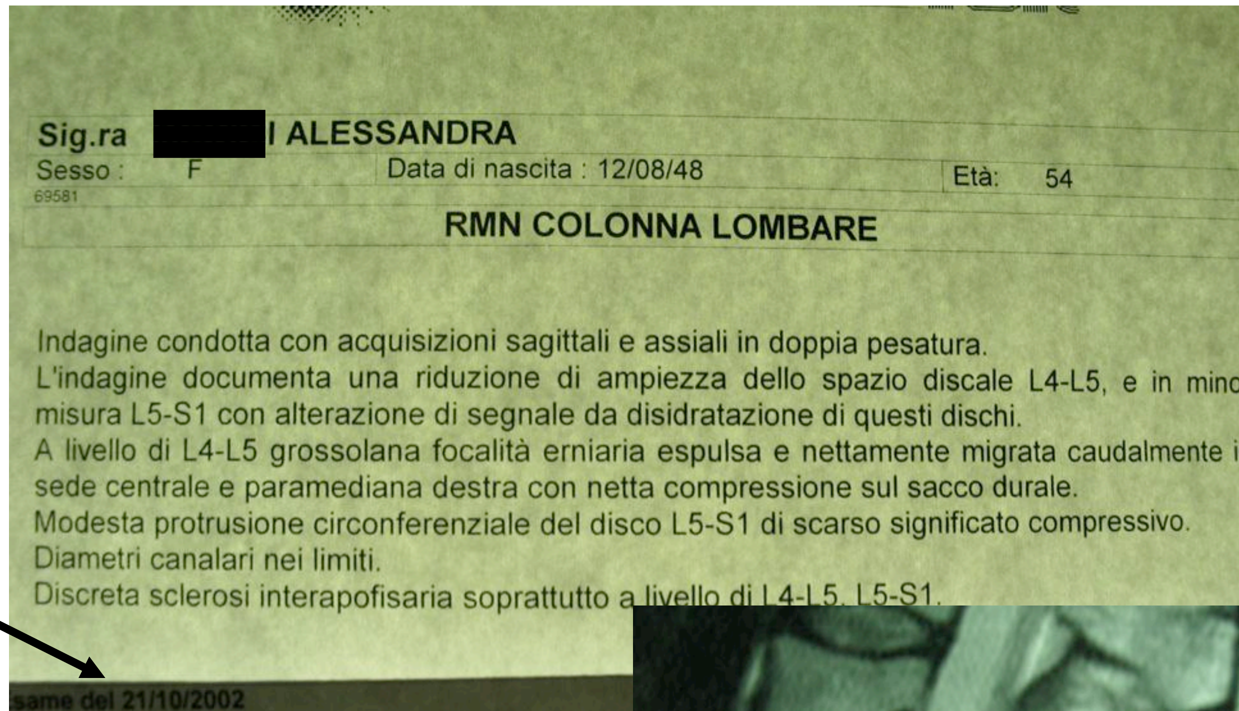
L'ERNIA DISCALE E' UN FENOMENO DINAMICO A PROGNOSI FAVOREVOLE NELLA MAGGIOR PARTE DEI CASI !!!

Numerosi studi hanno dimostrato che l'EDD spesso si riassorbe con scomparsa della sintomatologia

Lasegue + a 30° DX

Disestesie L5 DX

Non deficit neurologici



Sig.ra ■■■■■I ALESSANDRA

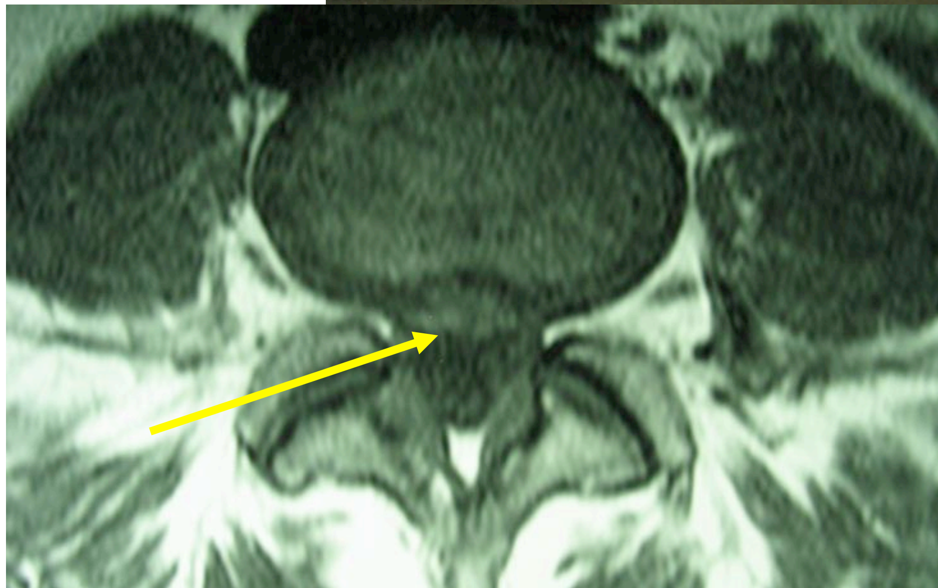
Sesso : F | Data di nascita : 12/08/48 | Età: 54

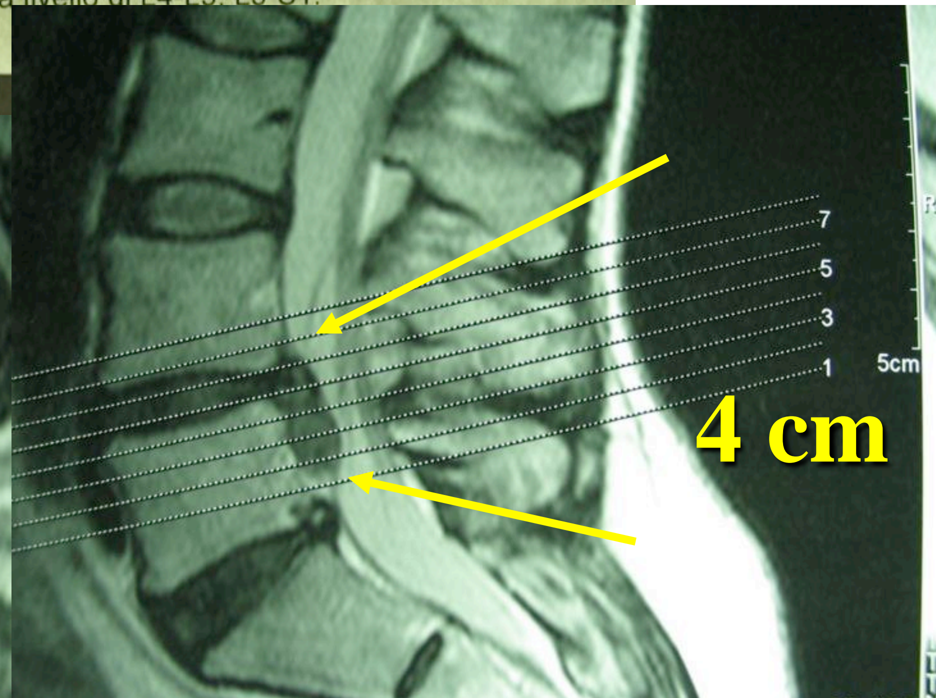
69581

RMN COLONNA LOMBARE

Indagine condotta con acquisizioni sagittali e assiali in doppia pesatura.
L'indagine documenta una riduzione di ampiezza dello spazio discale L4-L5, e in minor misura L5-S1 con alterazione di segnale da disidratazione di questi dischi.
A livello di L4-L5 grossolana focalità erniaria espulsa e nettamente migrata caudalmente in sede centrale e paramediana destra con netta compressione sul sacco durale.
Modesta protrusione circonferenziale del disco L5-S1 di scarso significato compressivo.
Diametri canalari nei limiti.
Discreta sclerosi interapofisaria soprattutto a livello di L4-L5, L5-S1.

same del 21/10/2002





Sig.ra M[illegible] ALESSANDRA

Sesso : F | Data di nascita : 12/08/48 | Età: 54

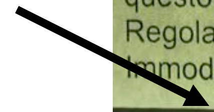
69581

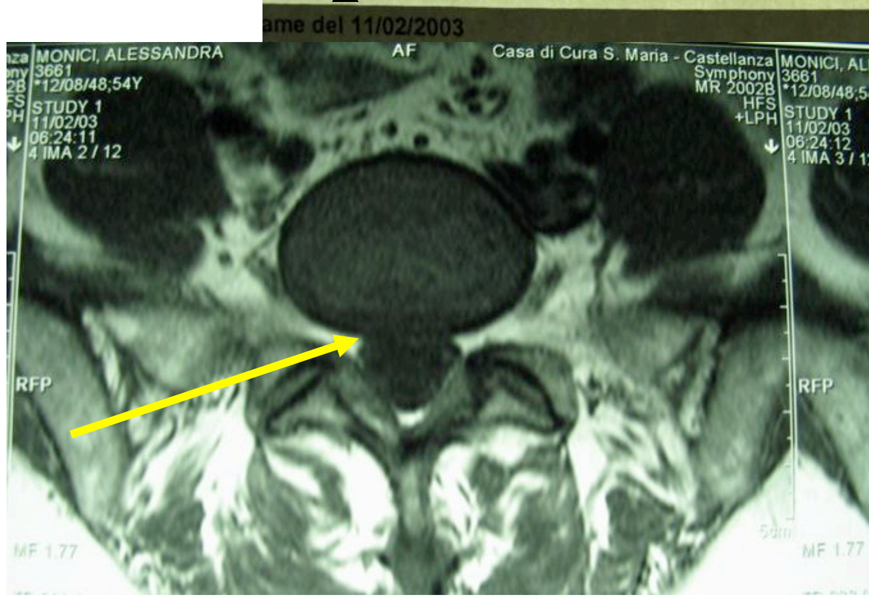
RMN COLONNA LOMBOSACRALE

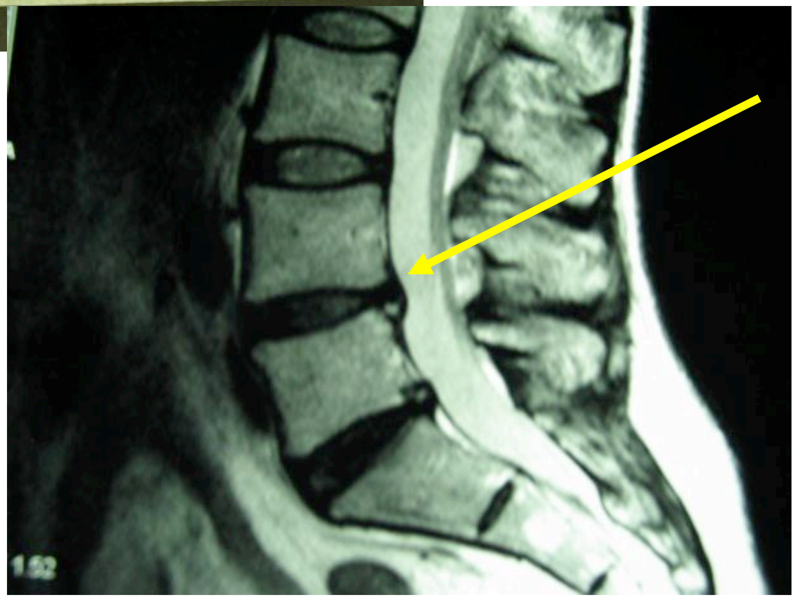
Acquisizioni S.E. T1 T2 dipendenti con rilevazioni multiplanari.
La paziente ha eseguito una precedente analoga indagine in data 21/10/02 e con tale confrontata.
L'indagine odierna pone in evidenza il pressochè completo recupero di una normale anatomia a livello endorachideo; in particolare l'evidente focalità erniaria espulsa a livello del disco L4-L5 in sede mediana e paramediana destra non risulta rilevabile verosimilmente per completa disidratazione del frammento nucleare espulso: sussiste una discreta protrusione anulare peraltro con scarse caratteristiche compressive sul sacco e sulle radici spinali.
Viene confermato modesto bulging anulare anche del disco L5-S1 senza focalità erniarie e con sostanziale normalità del reperto del sacco durale e delle radici anche a questo livello.
Regolari i riscontri ai livelli lombari superiori.
Immodificato il reperto strutturale scheletrico nei limiti della norma.

ame del 11/02/2003

4 mesi







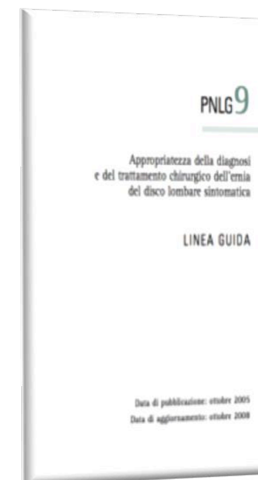
NON E' GIUSTIFICATA L'ALTA INCIDENZA DI ERNIECTOMIE SEMPLICI

ITALIA 30.000 ERNIECTOMIE /ANNO - TASSO/10.00O Abitanti

Ministero della Salute - PNLG
programma nazionale per le linee guida

LINEA GUIDA

Appropriatezza della diagnosi e del trattamento chirurgico dell'ernia del disco lombare sintomatica


PNLG 9

Appropriatezza della diagnosi e del trattamento chirurgico dell'ernia del disco lombare sintomatica

LINEA GUIDA

Data di pubblicazione: ottobre 2005
Data di aggiornamento: ottobre 2008

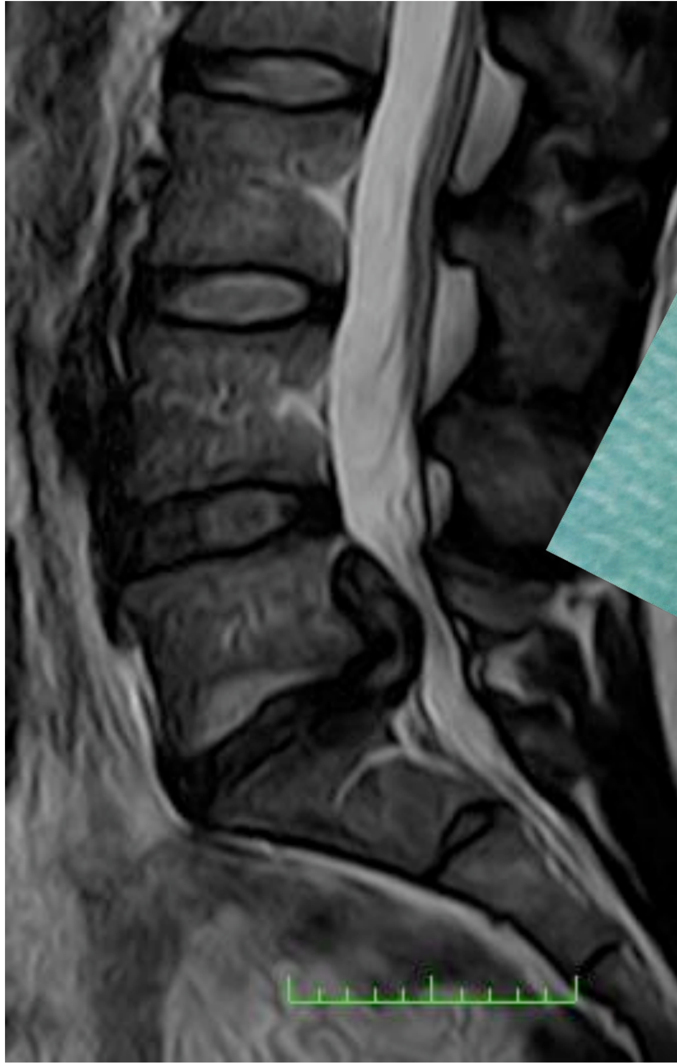
Documento 9 - ottobre 2005

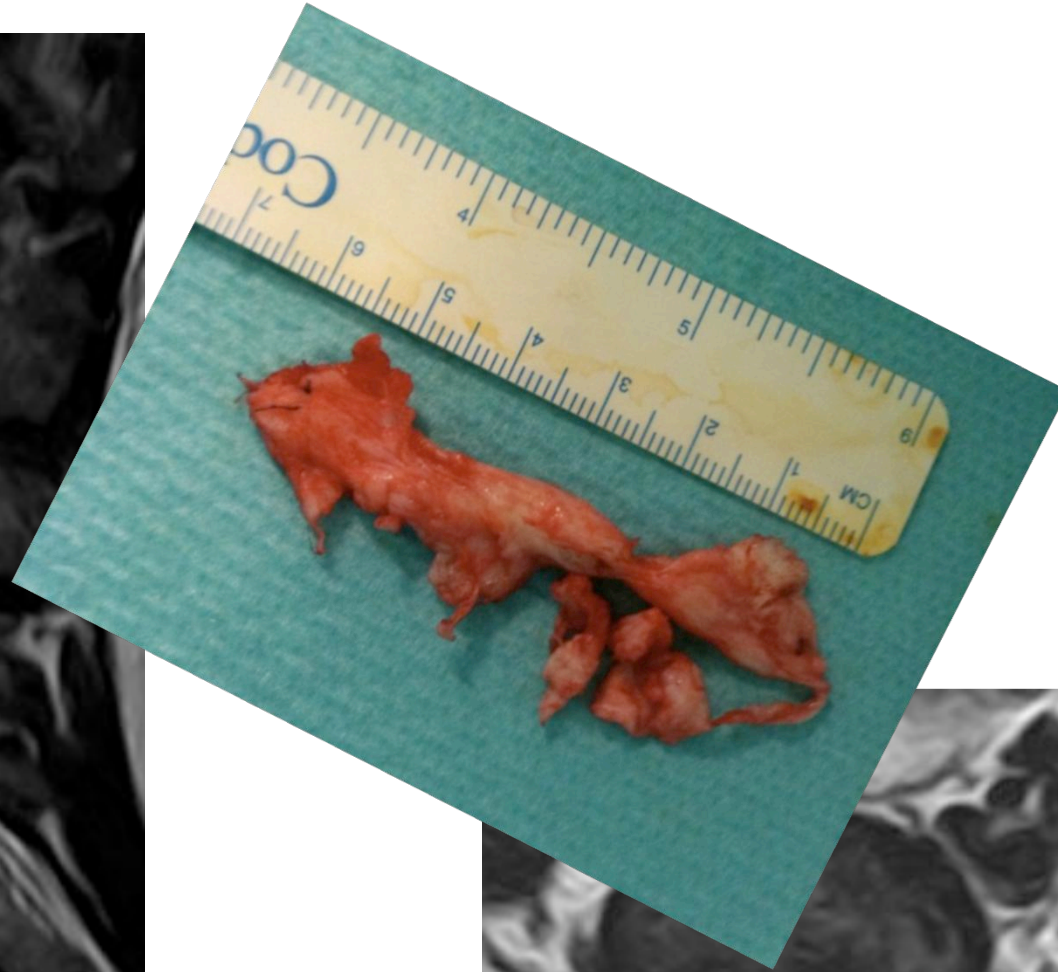
Aggiornamento ottobre 2009

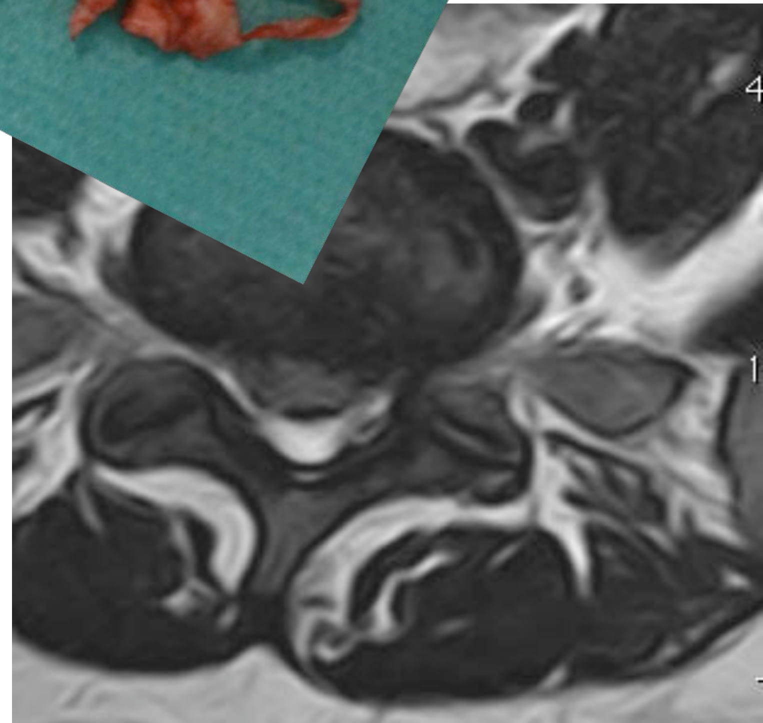
http://www.pnlg.it/

PNLG - indicazioni assolute all'intervento

- Sindrome della cauda equina (entro 48 h)
- Deficit motorio progressivo a carico degli AA inferiori
- Dolore all'arto inferiore con imaging positivo per erniazione discale o stenosi spinale non responsivo ad alcun trattamento conservativo per più di 6 settimane

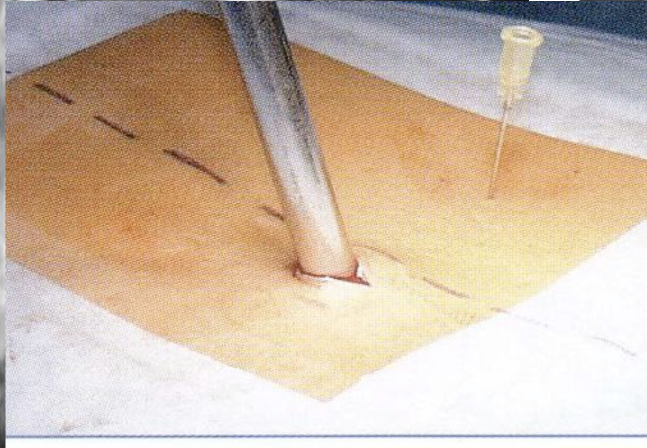


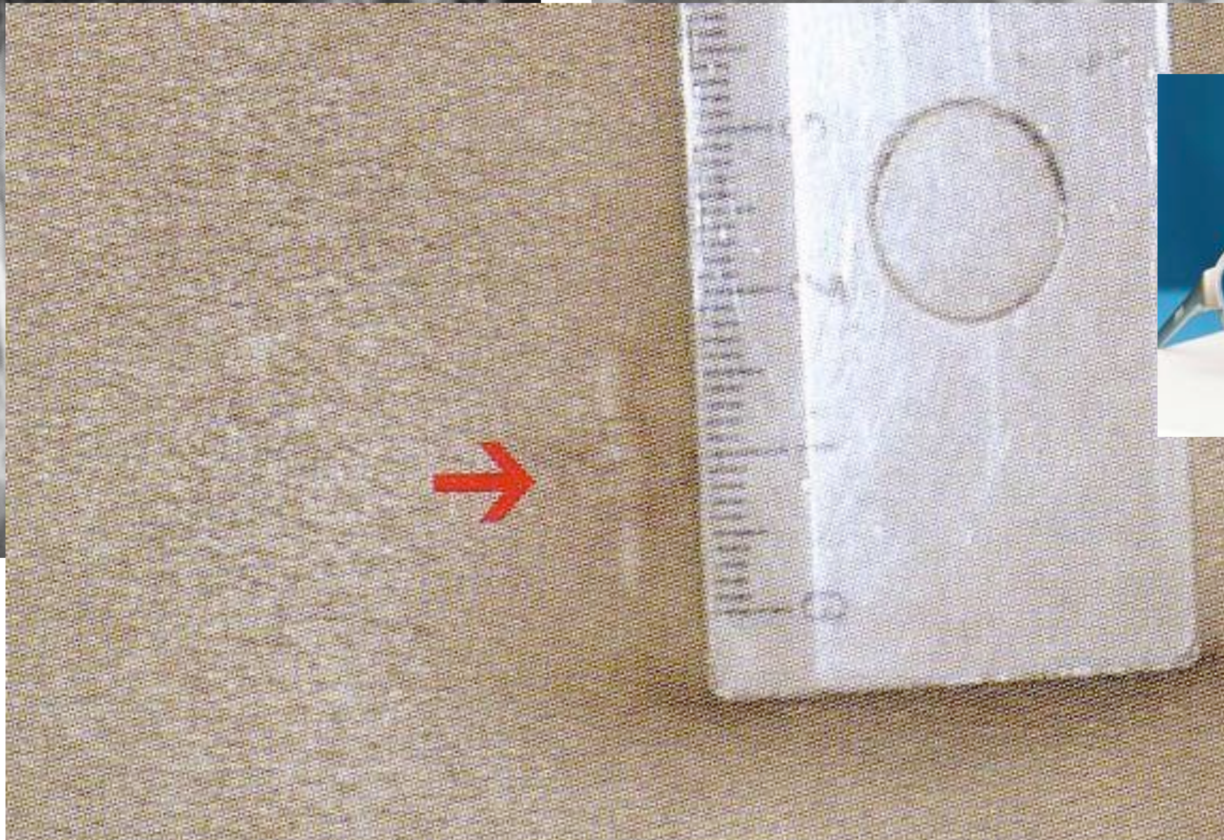




A.R, ♀ 35 anni

Lombosciatalgia sin con deficit L5 sin





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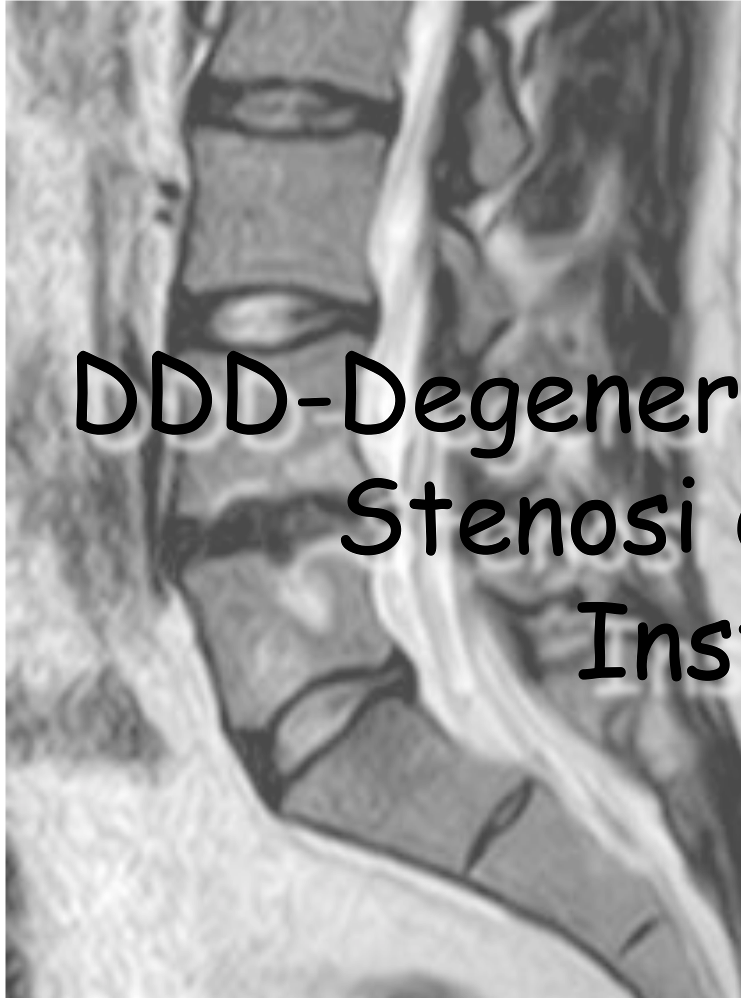
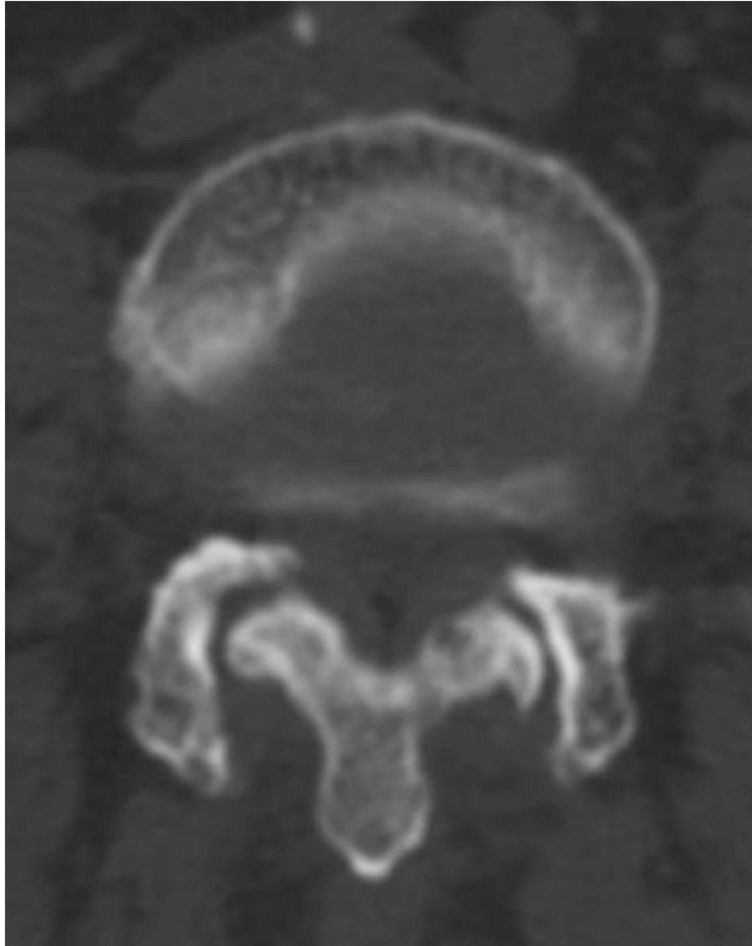


DDD-Degenerative Disk Disease
Stenosi degenerativa
Instabilità

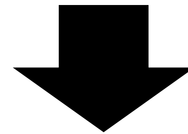
Crock HV. Med J Aust. 1970 16;1(20):983-9.

Weinstein J. Spine. 1988; 13(12):1344-8.



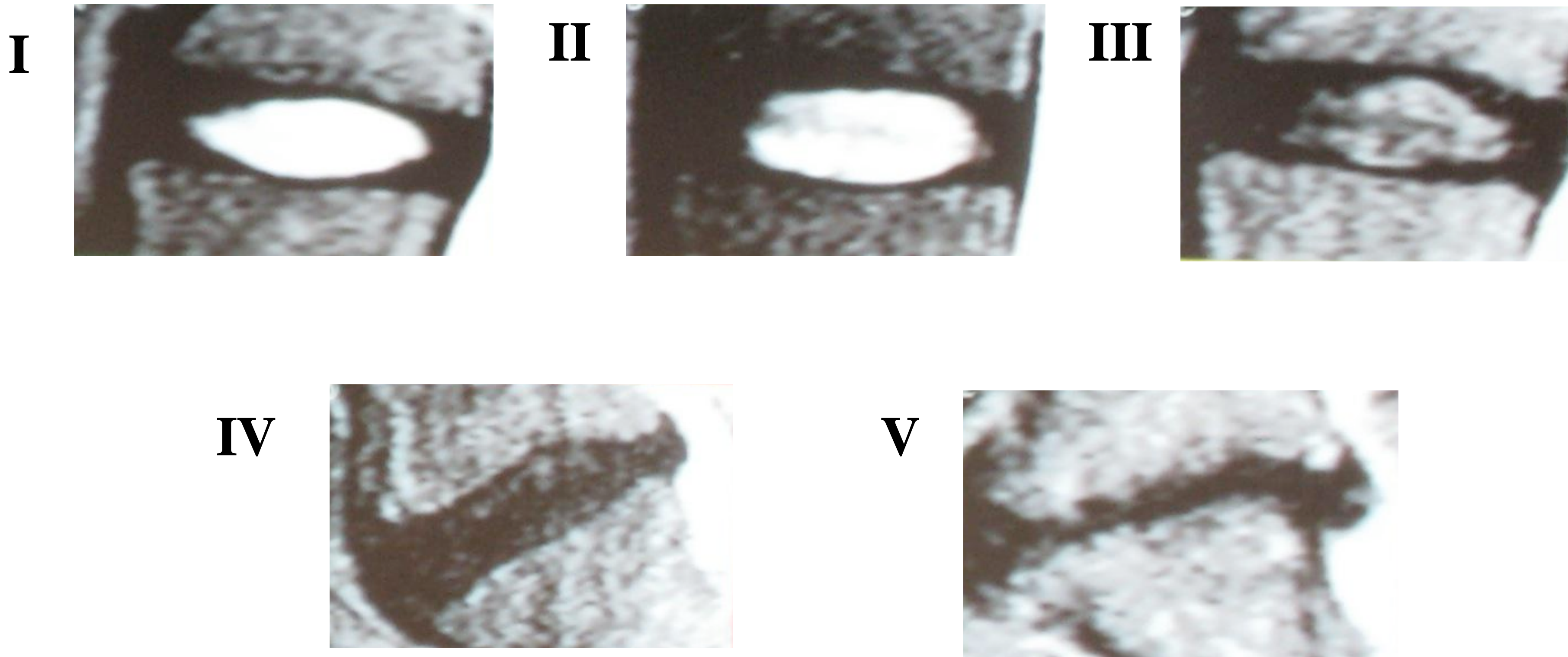
Degenerazione faccette articolari

Degenerazione disco intervertebrale



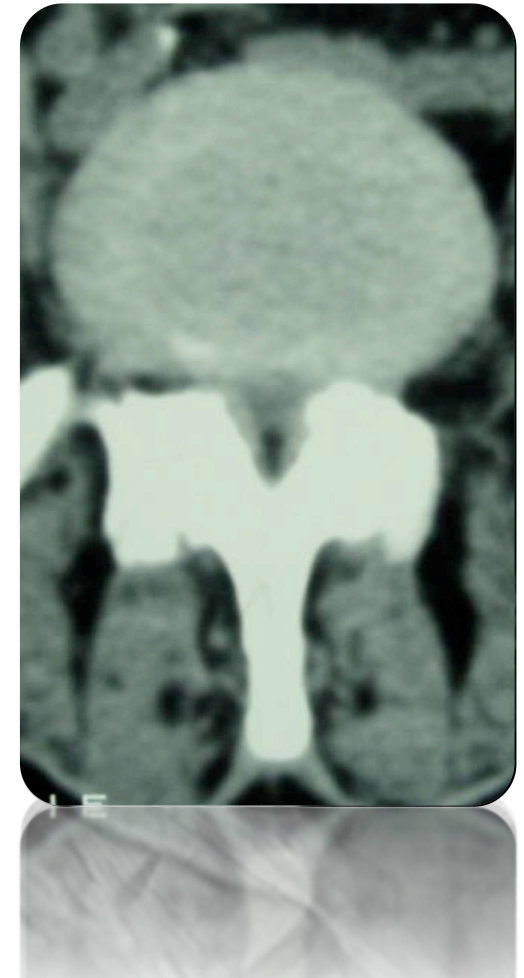
INSTABILITA' = DOLORE

MRI Classification of Disc Degeneration



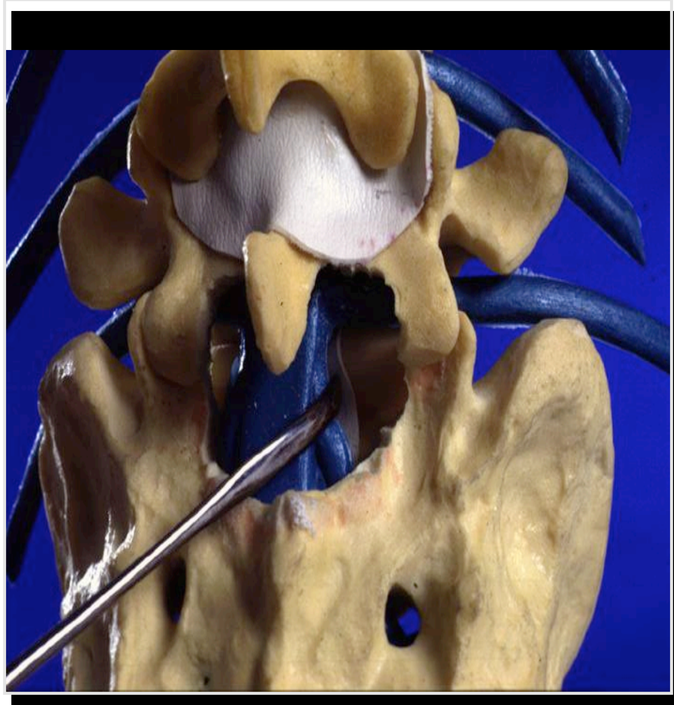
Pfirrmann CWA, Metzdorf A, Zanetti M et al. (2001) Magnetic resonance classification of lumbar intervertebral disc degeneration. Spine 26: 1873-8

QUANDO LA CHIRURGIA ??



QUALE LA CHIRURGIA ??

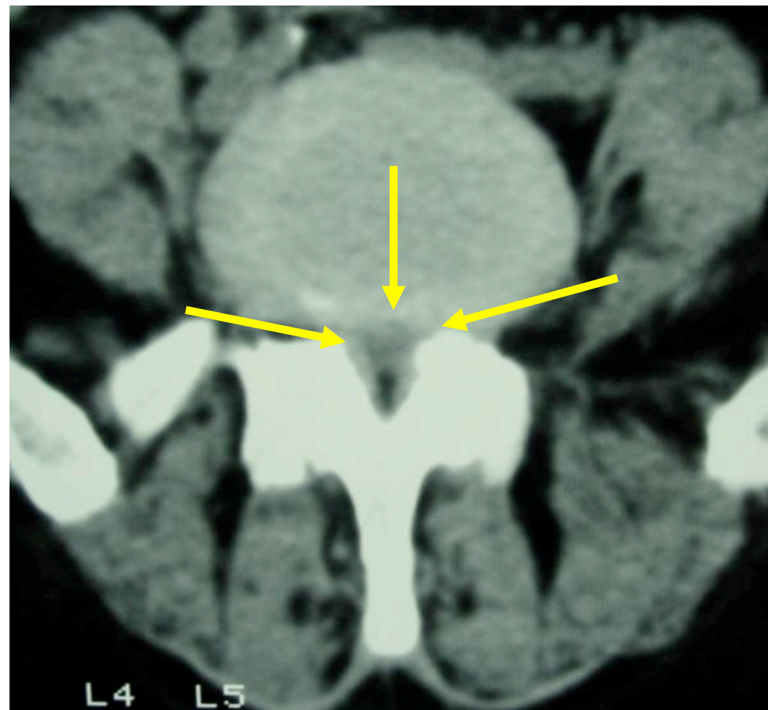
- **Decompressione +/-**
- **Artrodesi (FUSION):**
  - Artrodesi posterolaterale (PLF)
  - Artrodesi intersomatica anteriore (ALIF)
  - Artrodesi intersomatica posteriore (PLIF-TLIF)
  - Artrodesi intersomatica laterale (XLIF) New
- **NO FUSION (Sistemi Stabilizzazione Dinamica)**



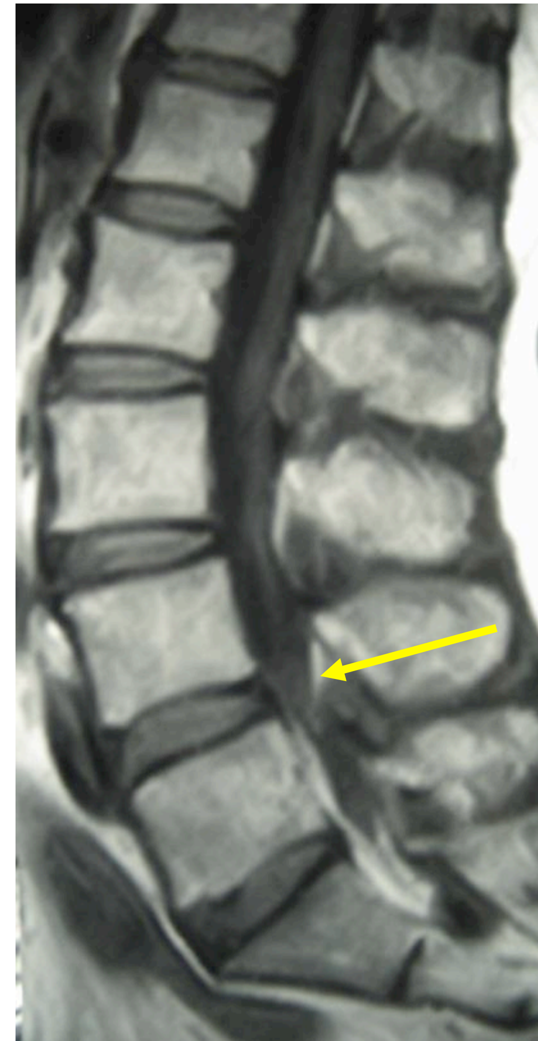
" The mainstay of surgical treatment is decompression. There is no general agreement about the indications for fusion and instrumentation."

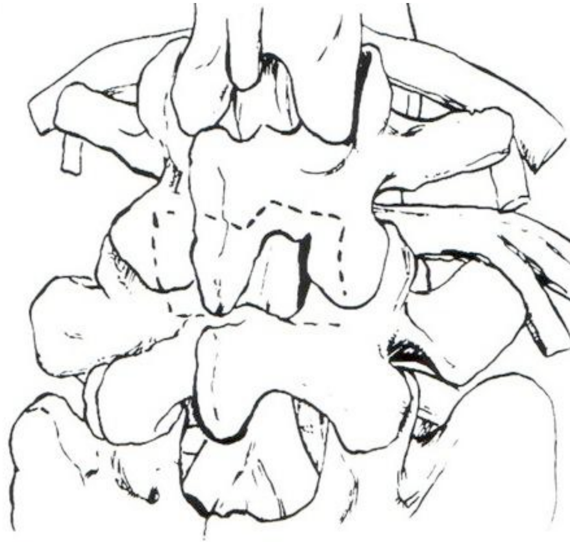
Sengupta and Hrkowitz Spine 2005 30 (68) S71-S81

STENOSI CENTRALI O LATERALI SENZA INSTABILITA'



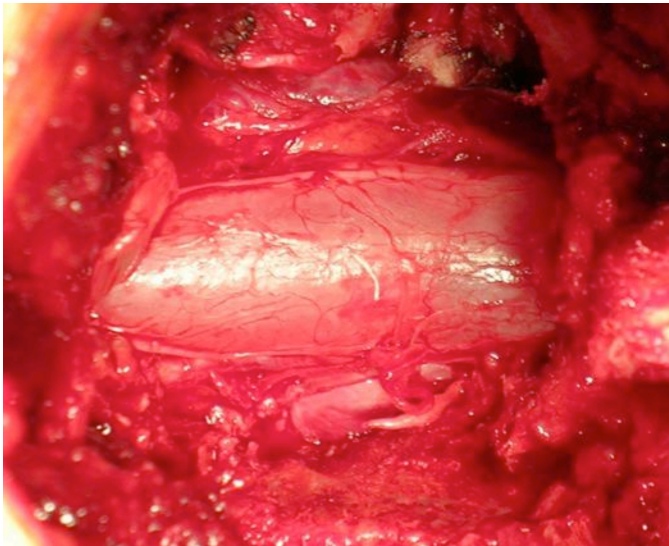
G.P, ♂ 57 anni
Lombosciatalgia bilat.ingravescente con parestesie L5

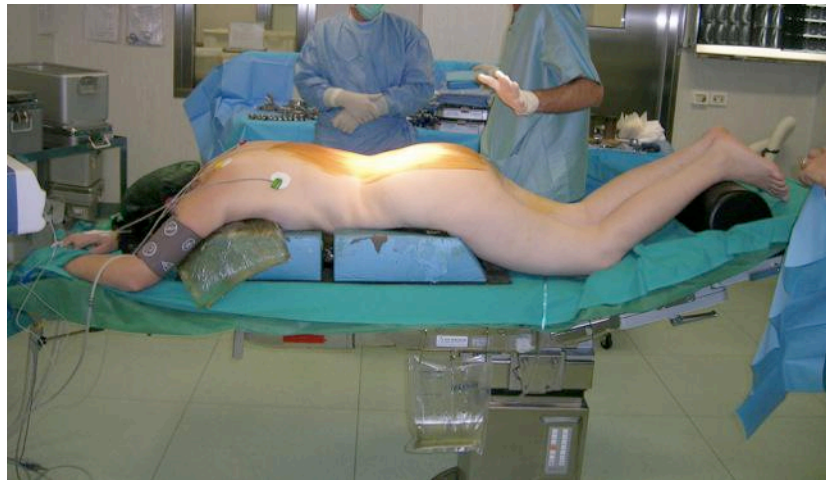


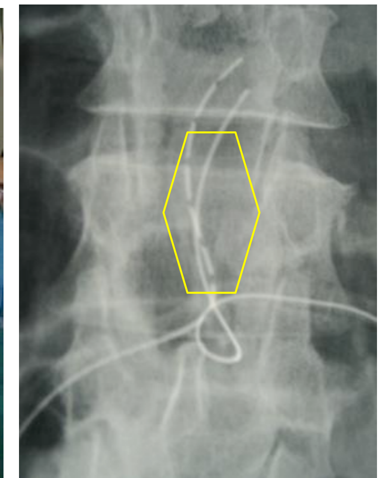


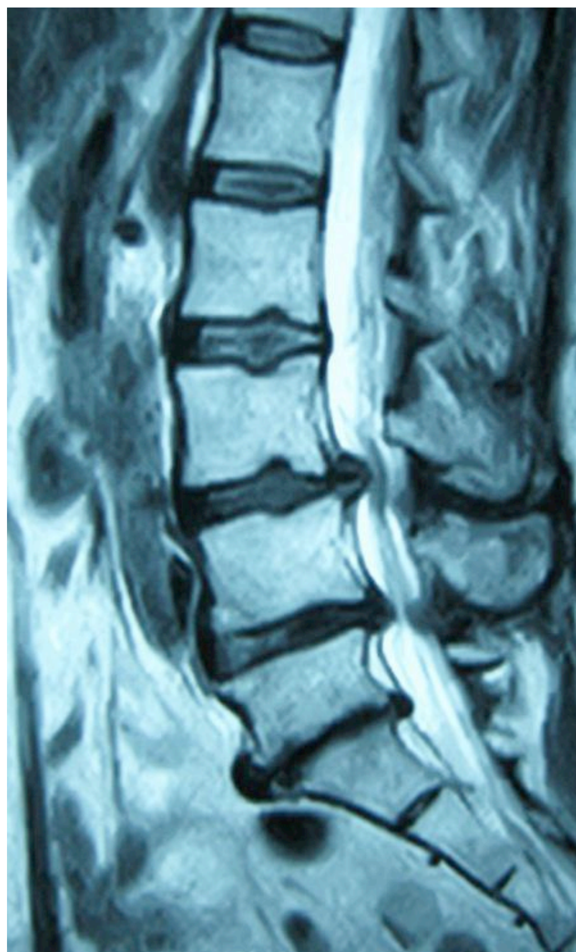
Rispetto delle articolari
=
STABILITA’

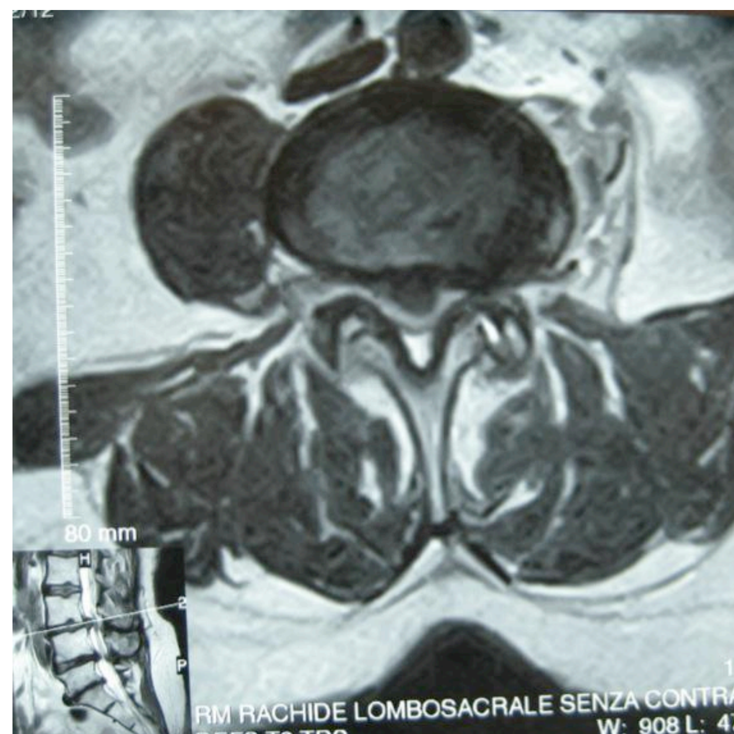
Grob D. et Al. J Bone Joint Surg 1995;77







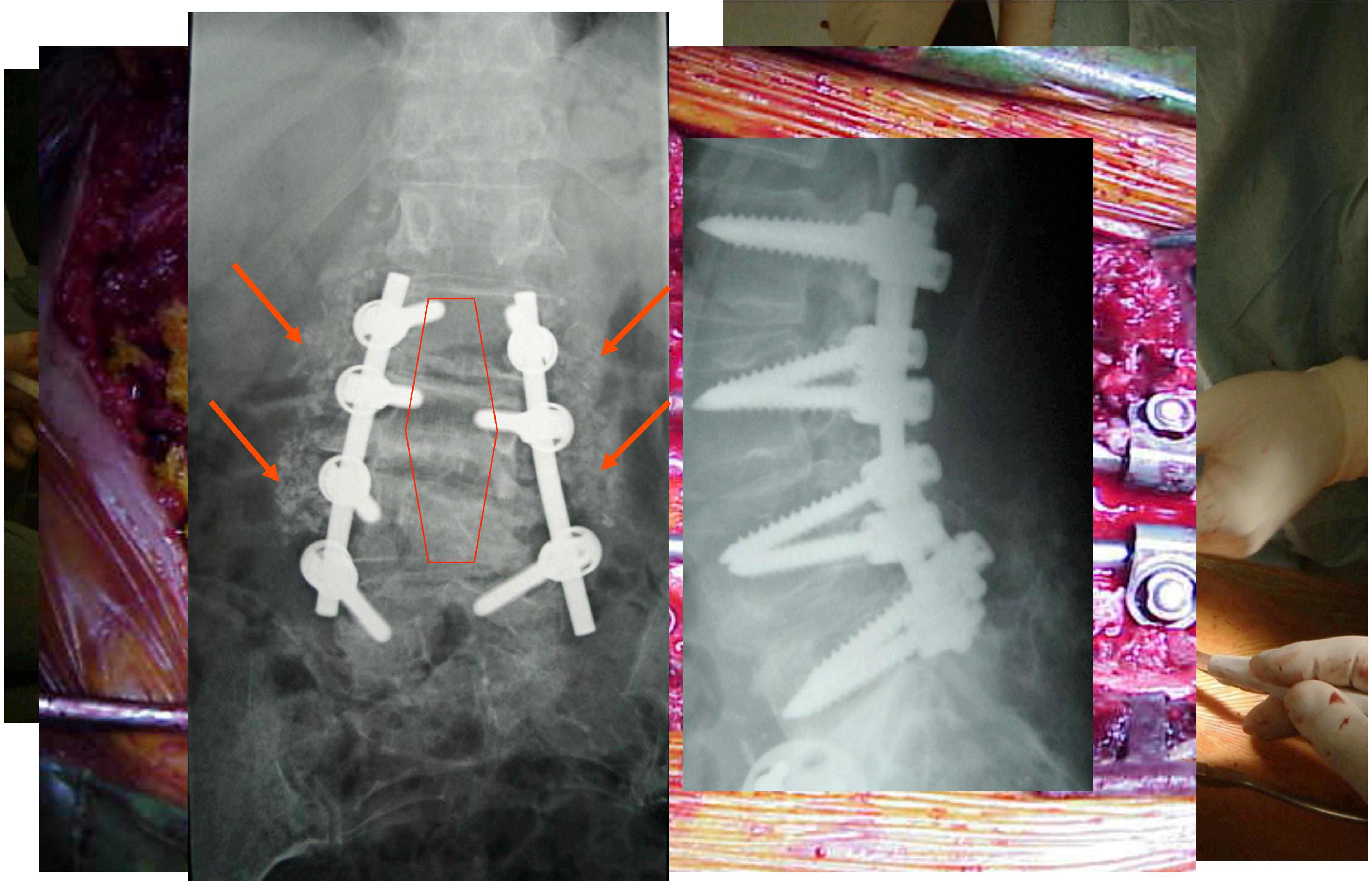


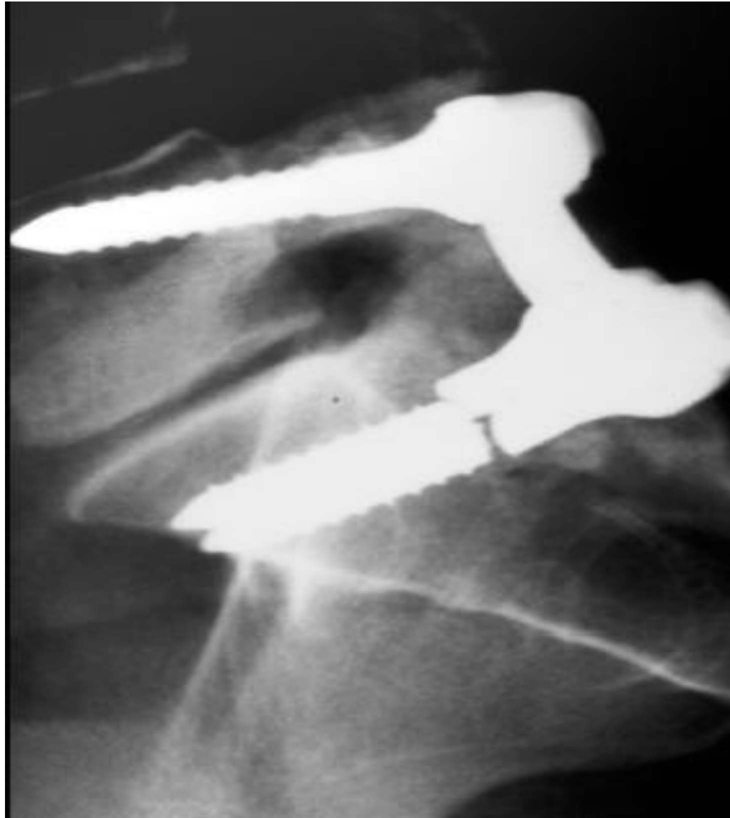


M.T, ♀ 68 anni

Lombosciatalgia bilat. con claudicatio neurogena

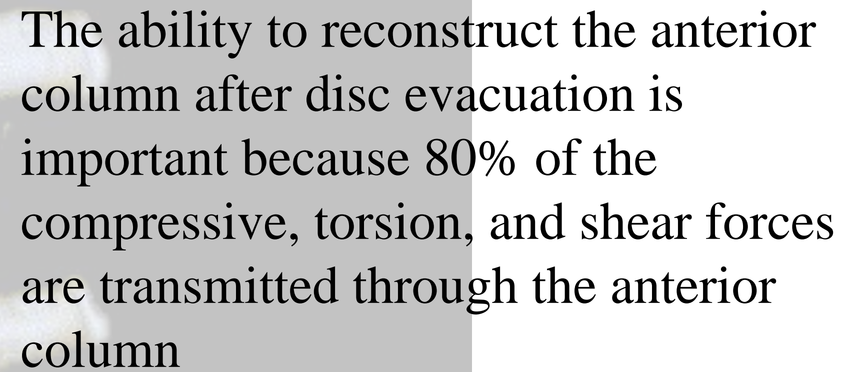
Artrodesi posterolaterale (**PLF**)





" It's a longtime we know that it is important the anterior support and fusion in the surgical treatment of spondylolistesis and severe degenerative disc disease"

NO anterior support Breaking of the pedicle screw

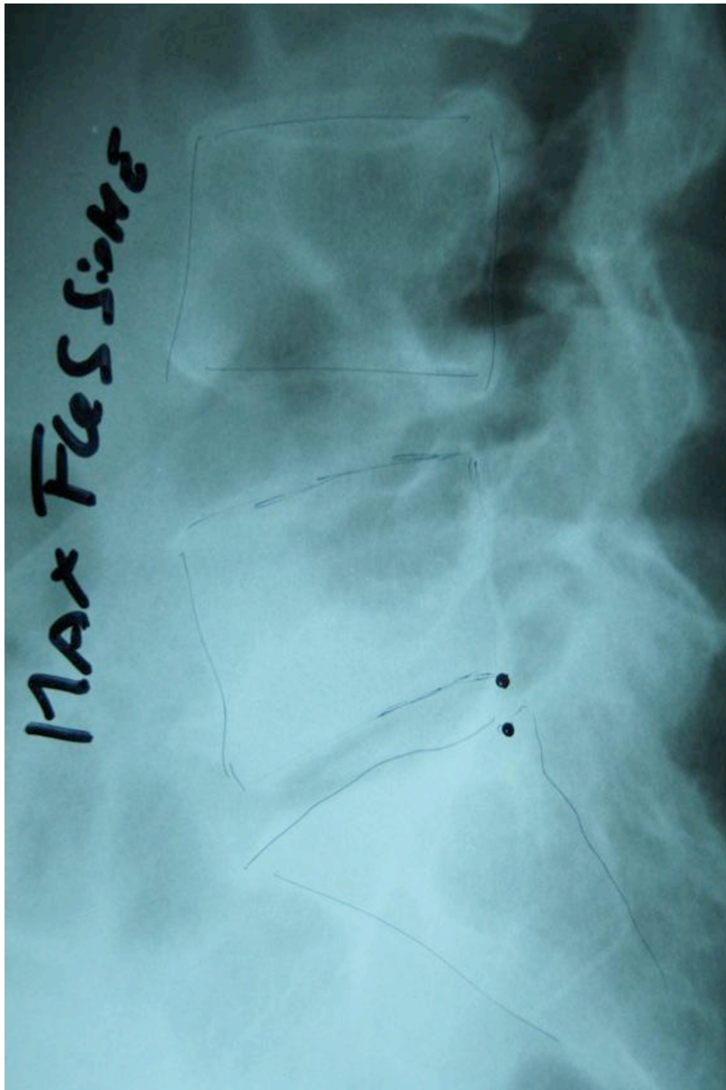


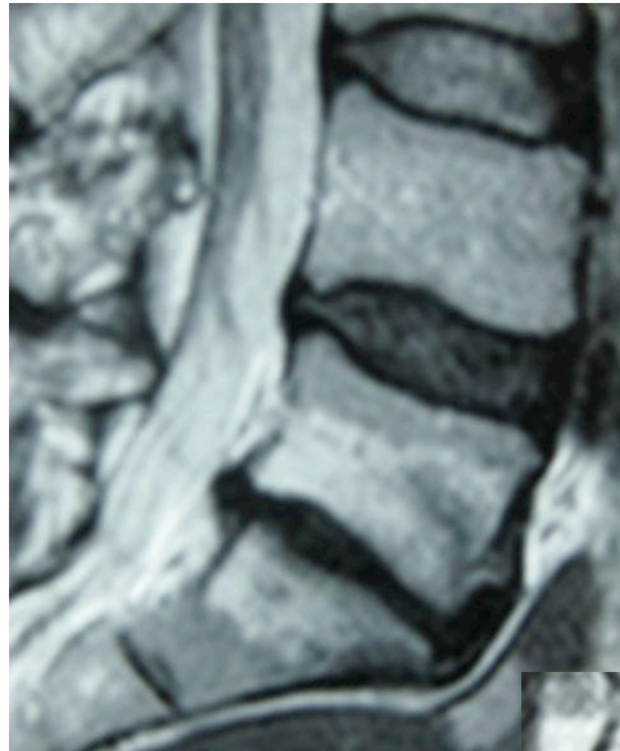
The ability to reconstruct the anterior column after disc evacuation is important because 80% of the compressive, torsion, and shear forces are transmitted through the anterior column

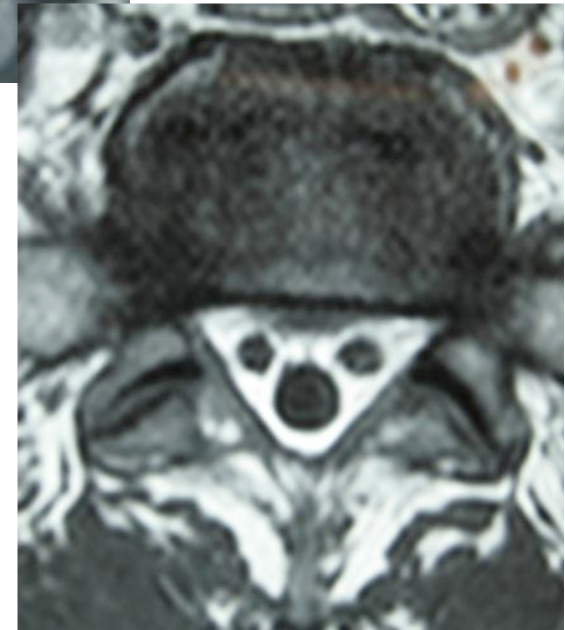
Yang SW, Langrana NA, Lee CK (1986) Biomechanics of lumbosacral spinal fusion in combined compression-torsion loads. **Spine** 11:937–941.

DIFFERENT CAGES and MATERIALS

E

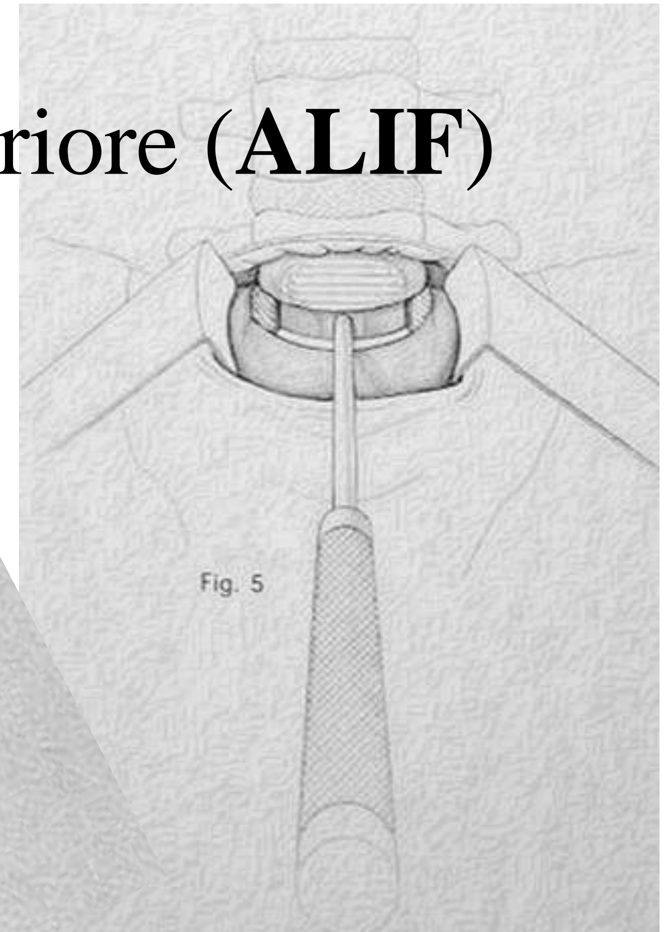






A.C., ♀ 42 anni
Lombalgia cronica ingravescente

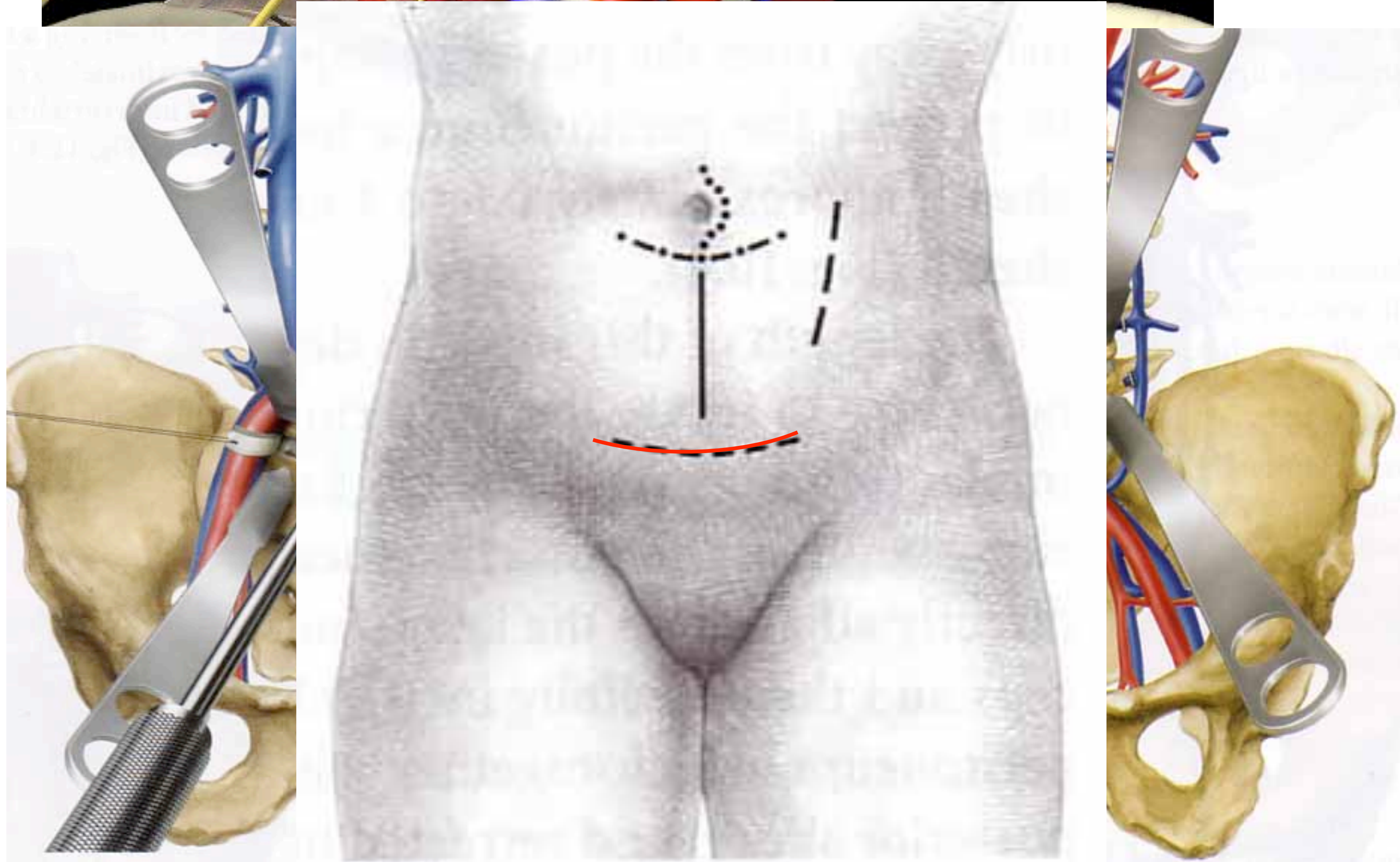
Artrodesi intersomatica anteriore (**ALIF**)

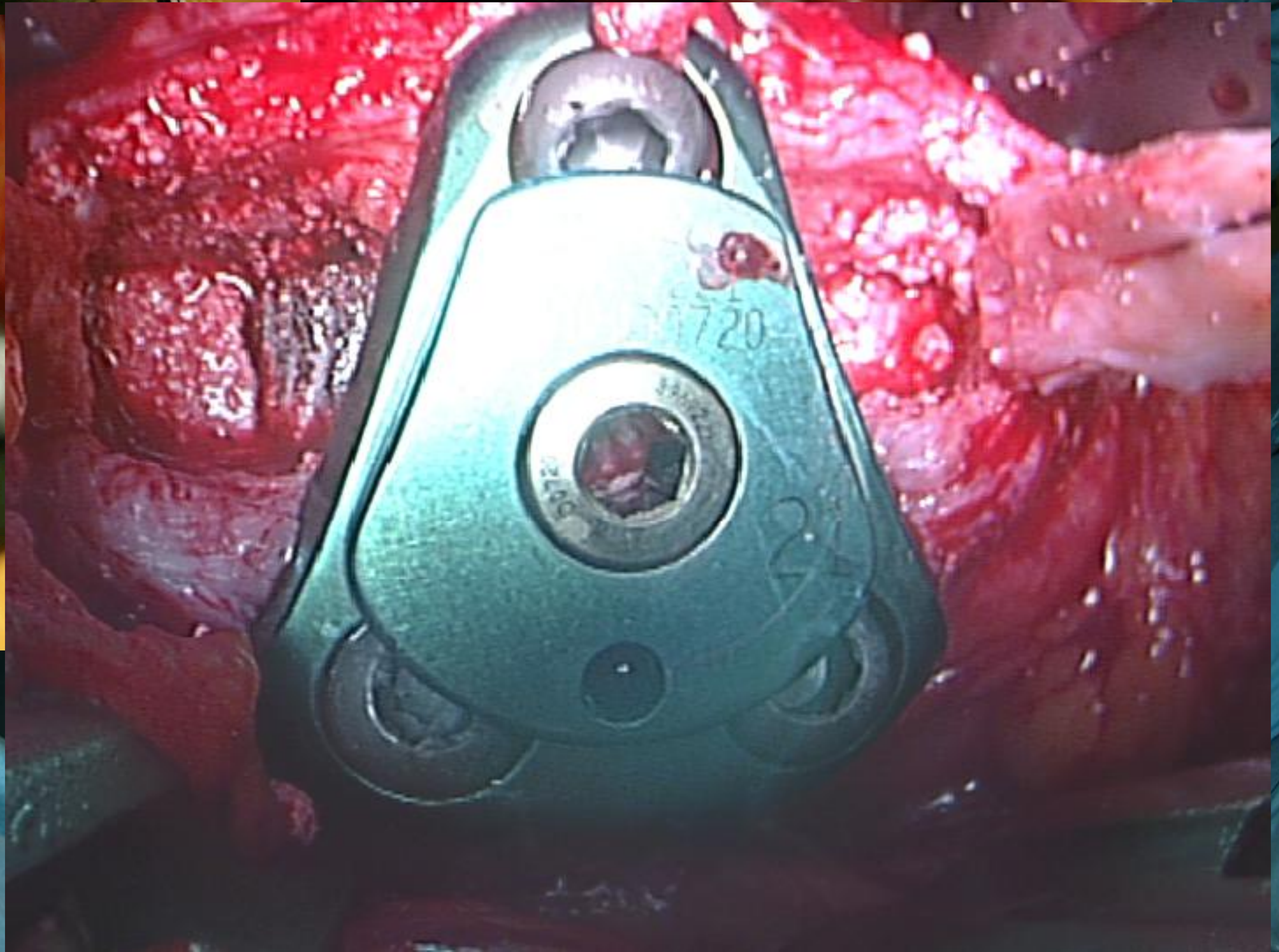


A.C., ♀ 42 anni

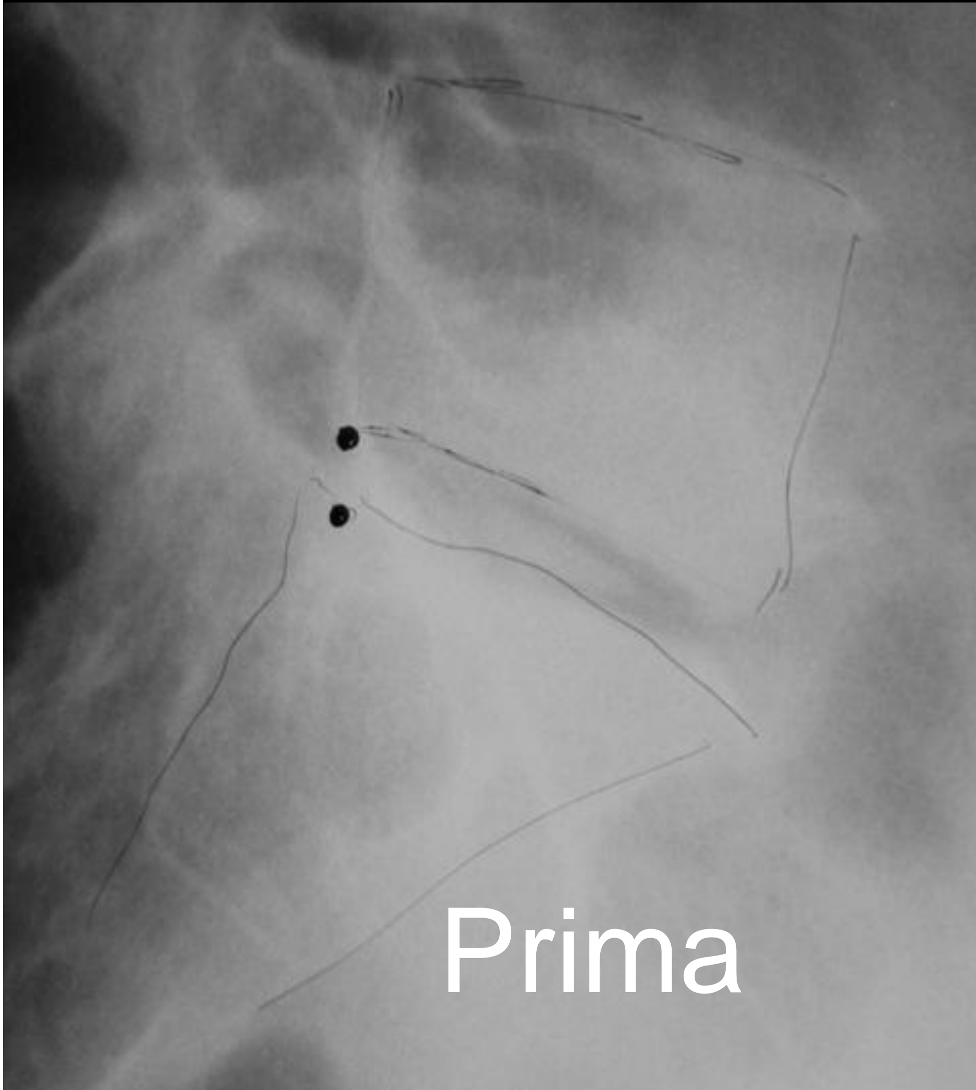
Approccio anteriore

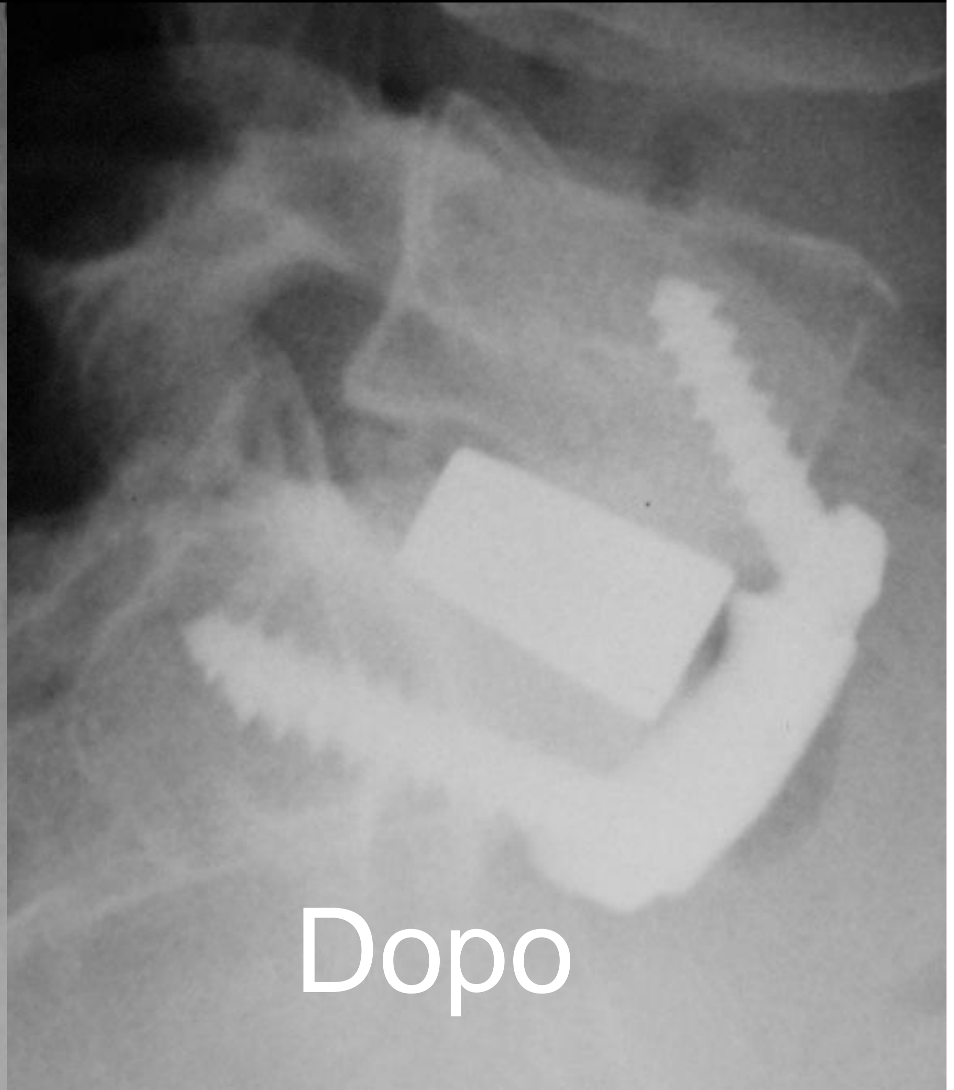
RETROPERITONEALE





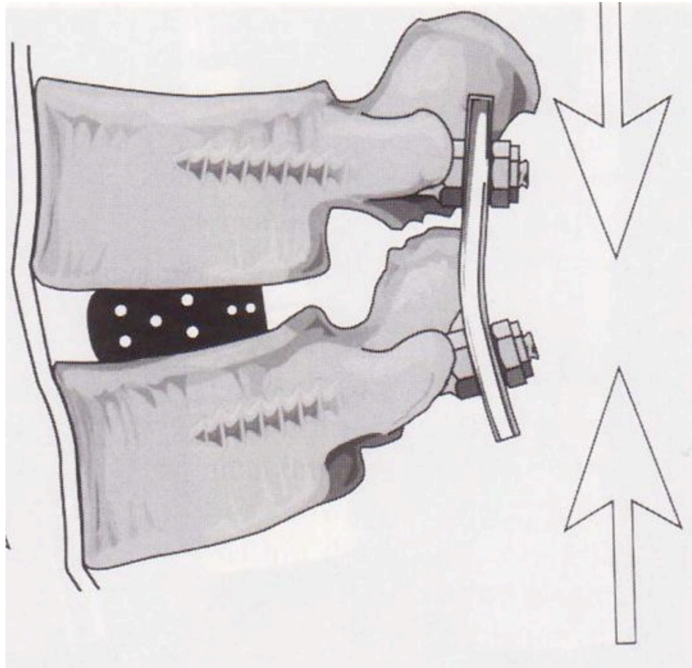
A.C., ♀ 42 anni

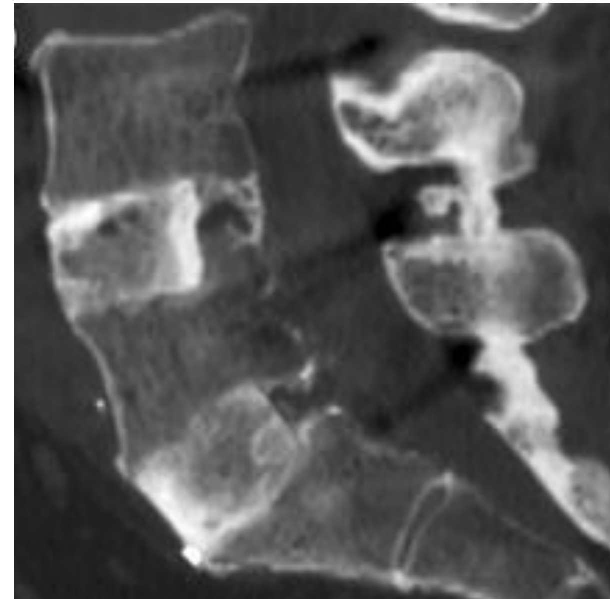




A.C., ♀ 42 anni

Artrodesi intersomatica posteriore (PLIF-TLIF)



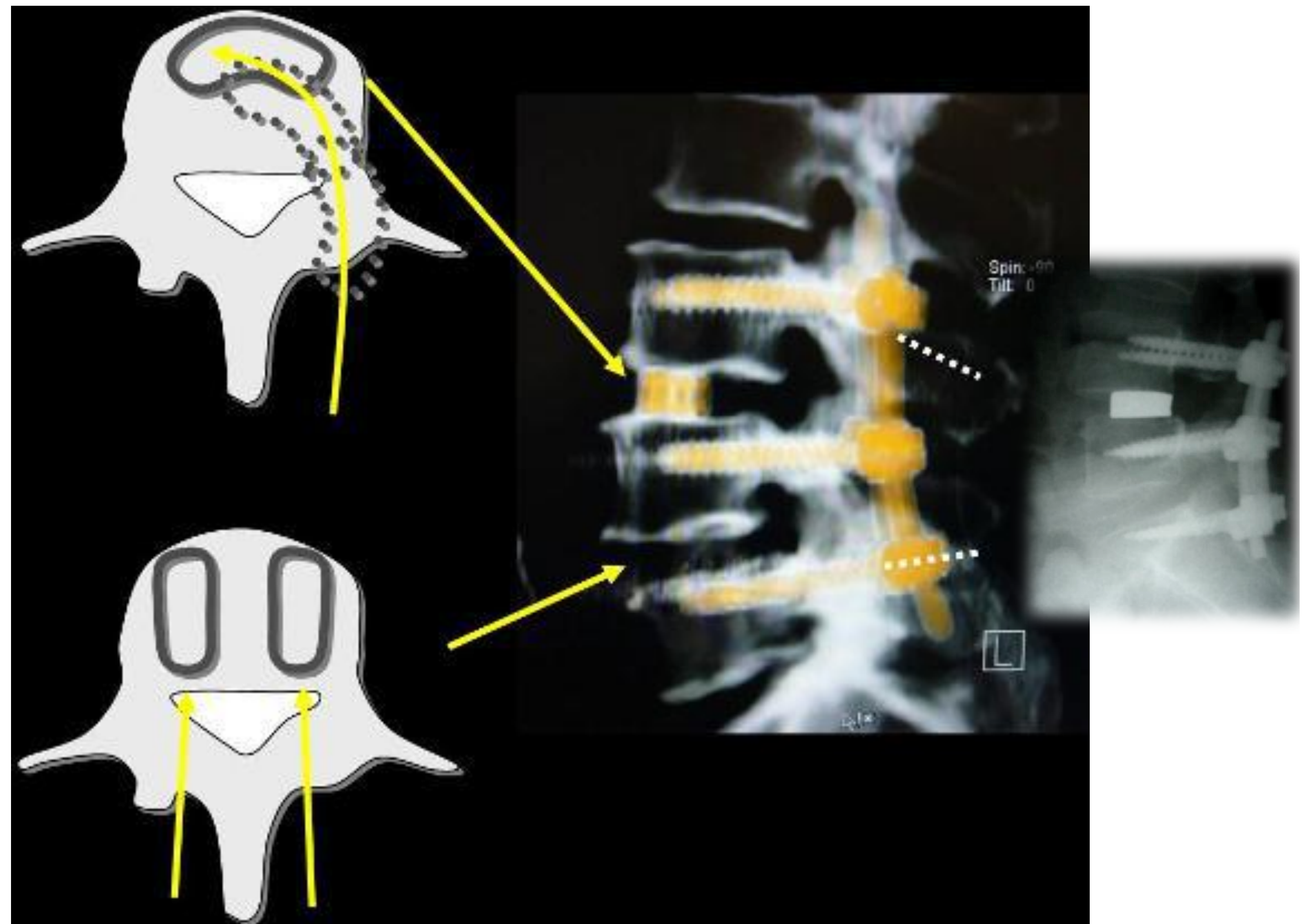


Un alternativa alla ricostruzione della colonna anteriore è l'artrodesi intersomatica per via posteriore

Cloward R (1953) The treatment of ruptured lumbar intervertebral discs by vertebral body fusion. J Neurosurg 10:154–168

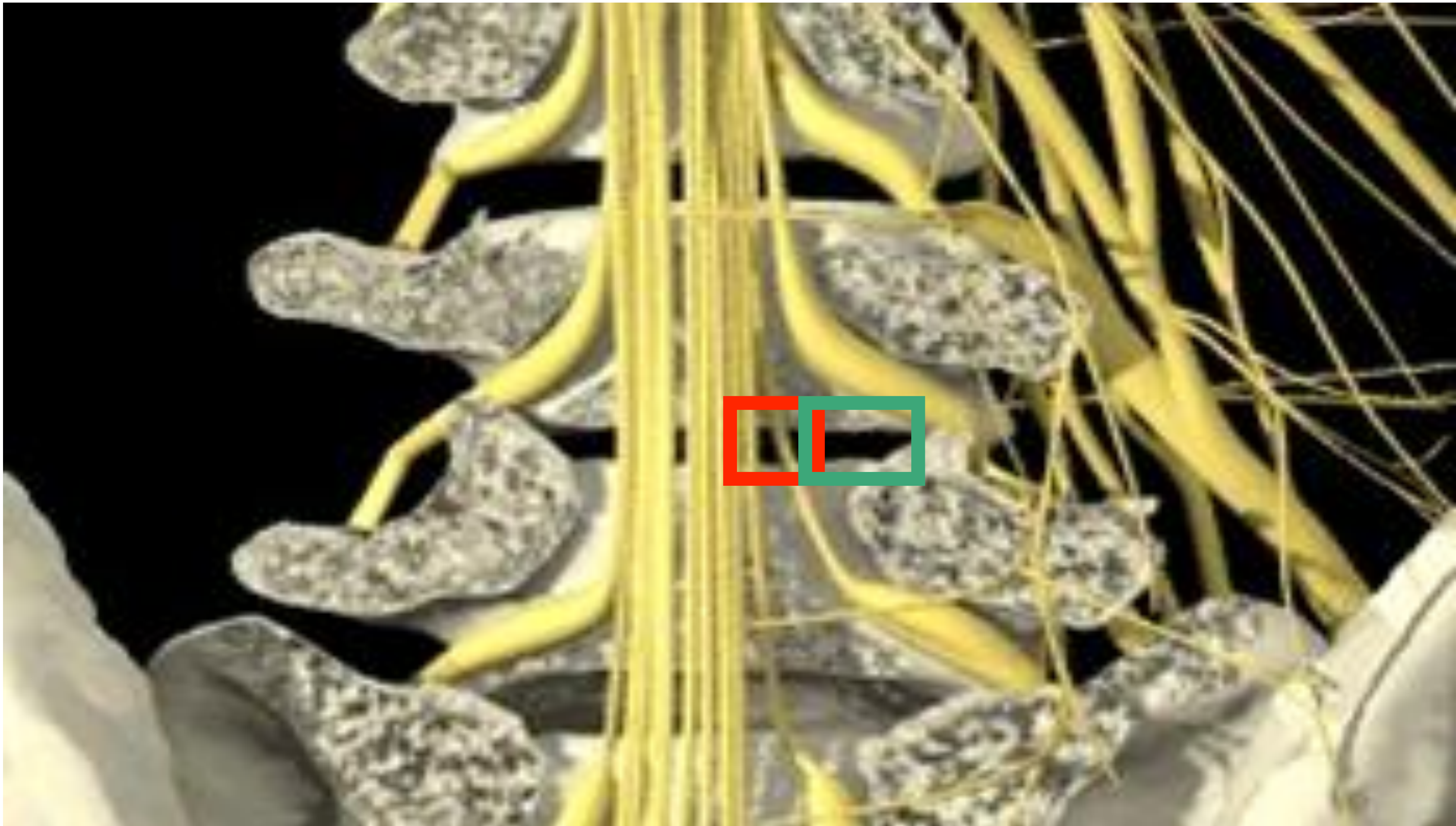
Harms JG, Jeszenszky D (1998) The unilateral, transforaminal approach for posterior lumbar interbody fusion. Orthop Traumatol 6:88–99

TLIF



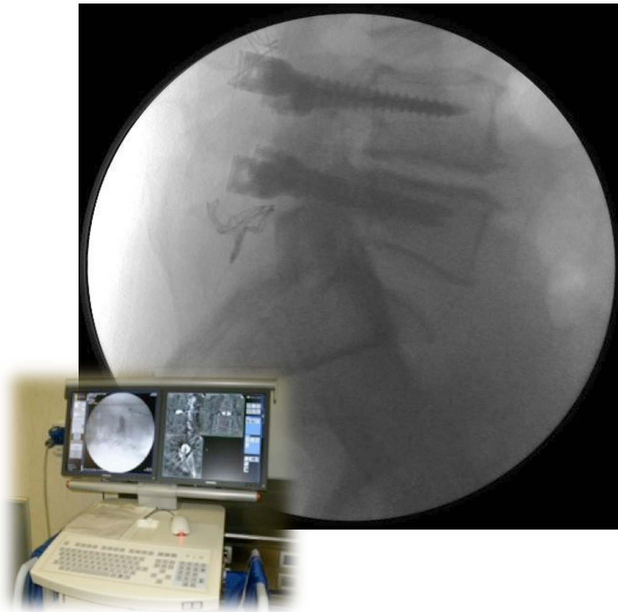
PLIF

Humphreys SC, Hodges SD, Patwardhan AG et al (2001) Comparison of posterior and transforaminal approaches to lumbar interbody fusion. **Spine** 26:567–571.



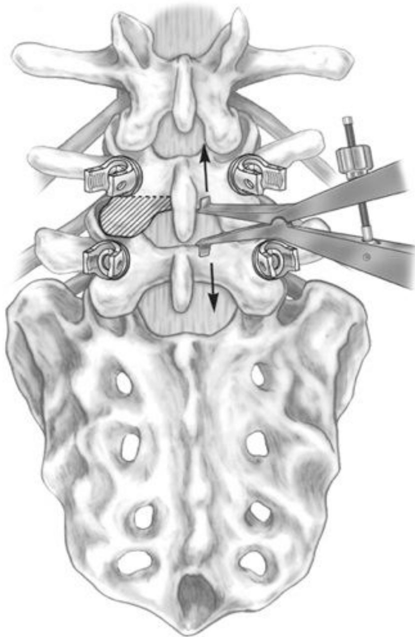
Harms JG, Jeszenszky D (1998) The unilateral, transforaminal approach for posterior lumbar interbody fusion. Orthop Traumatol 6:88–99

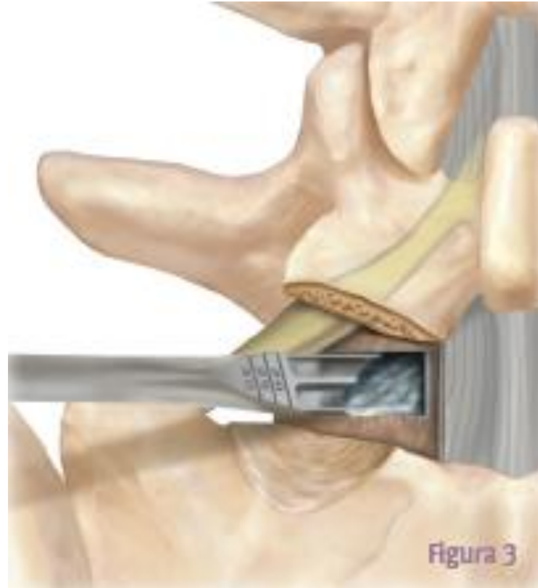
Approccio posteriore standard

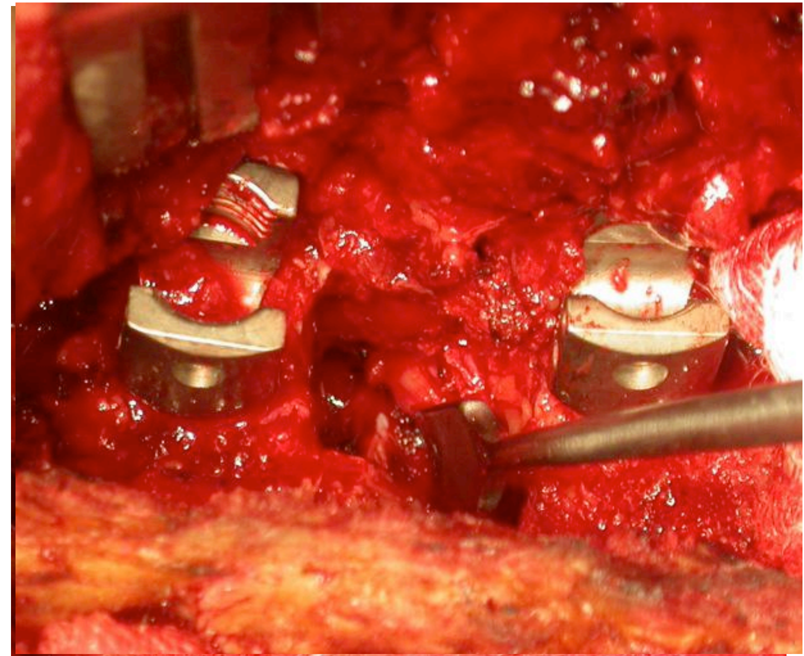


Strumentazione posteriore con controllo ampliscopico

Harms JG, Jeszenszky D (1998) The unilateral, transforaminal approach for posterior lumbar interbody fusion. Orthop Traumatol 6:88–99

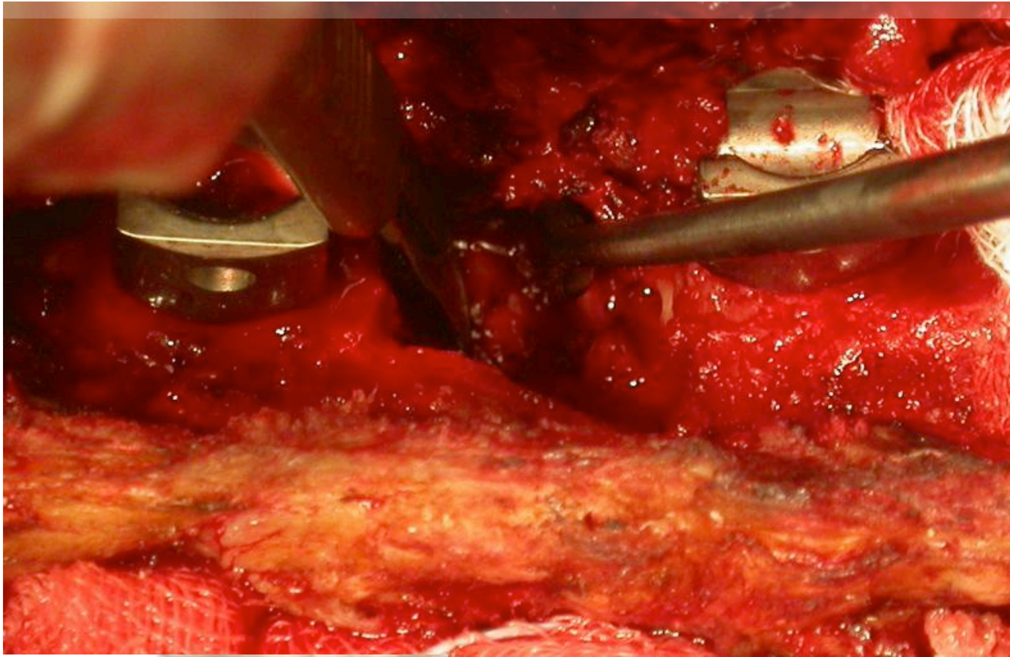


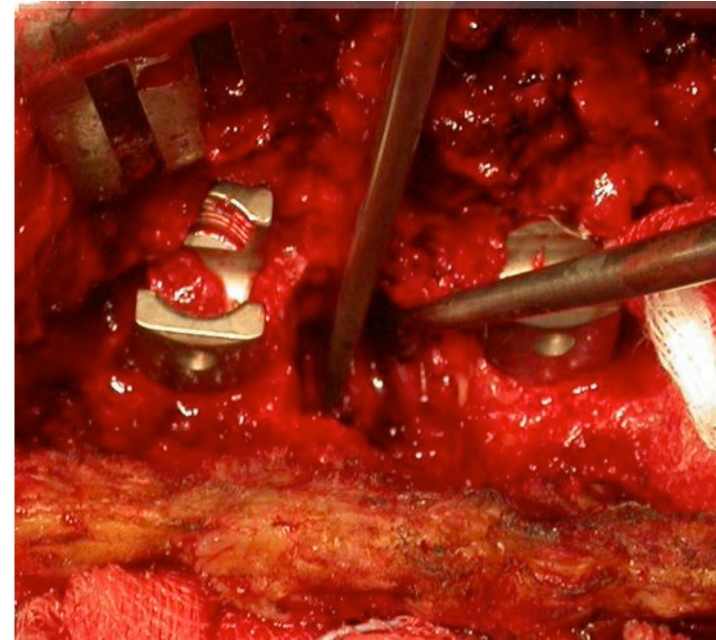


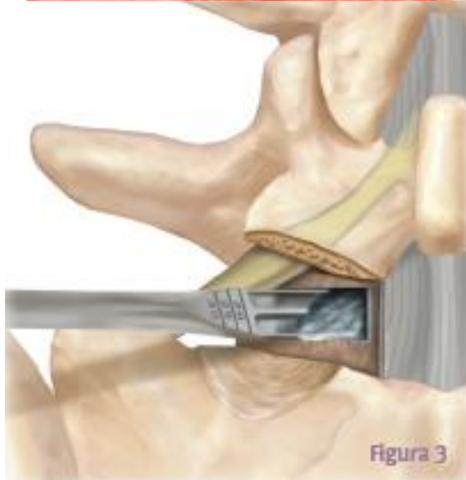


Accesso monolaterale, artrectomia completa con asportazione dell'emilamina e del legamento giallo per approccio al disco

Harms JG, Jeszenszky D (1998) The unilateral, transforaminal approach for posterior lumbar interbody fusion. Orthop Traumatol 6:88–99

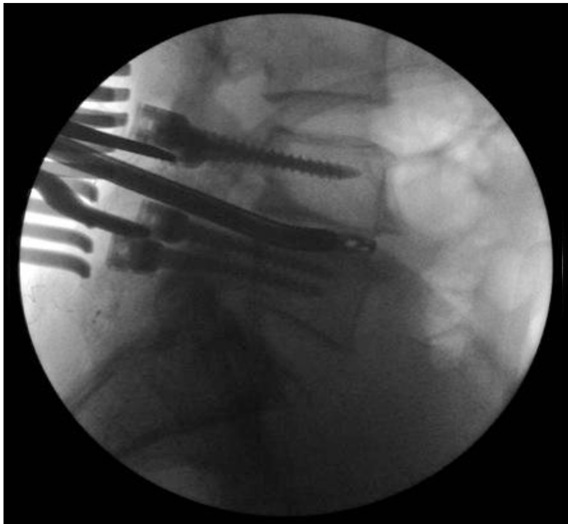


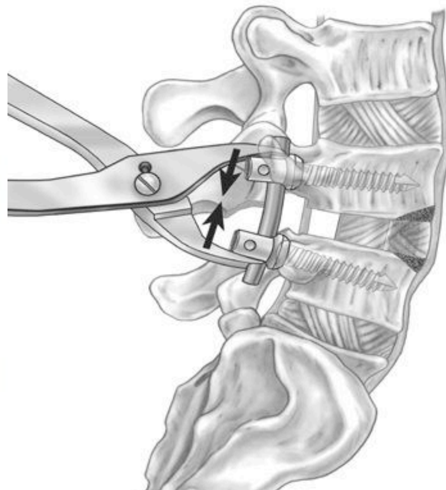


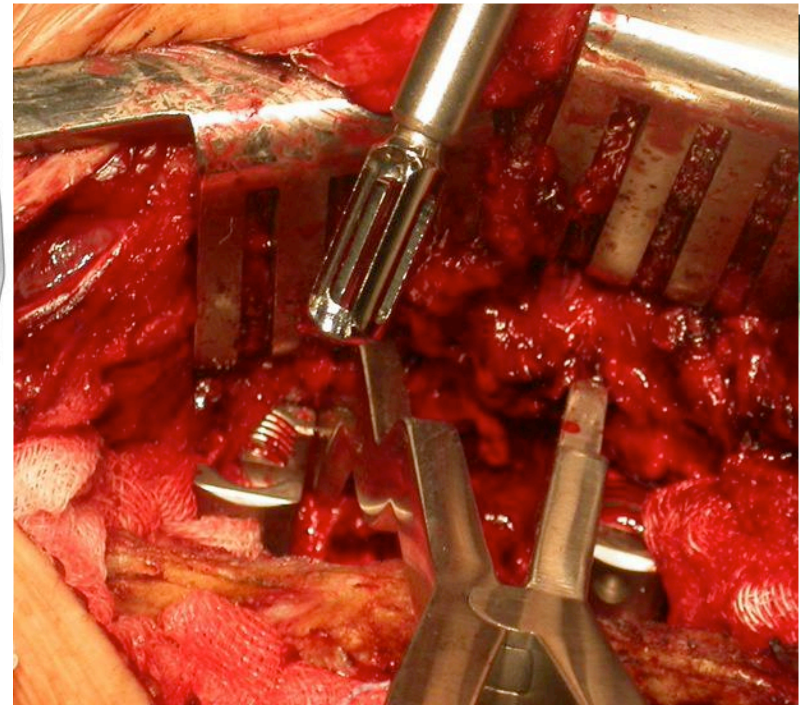


Completa discectomia + cruentazione dei piatti vertebrali ed introduzione
Innesto osseo

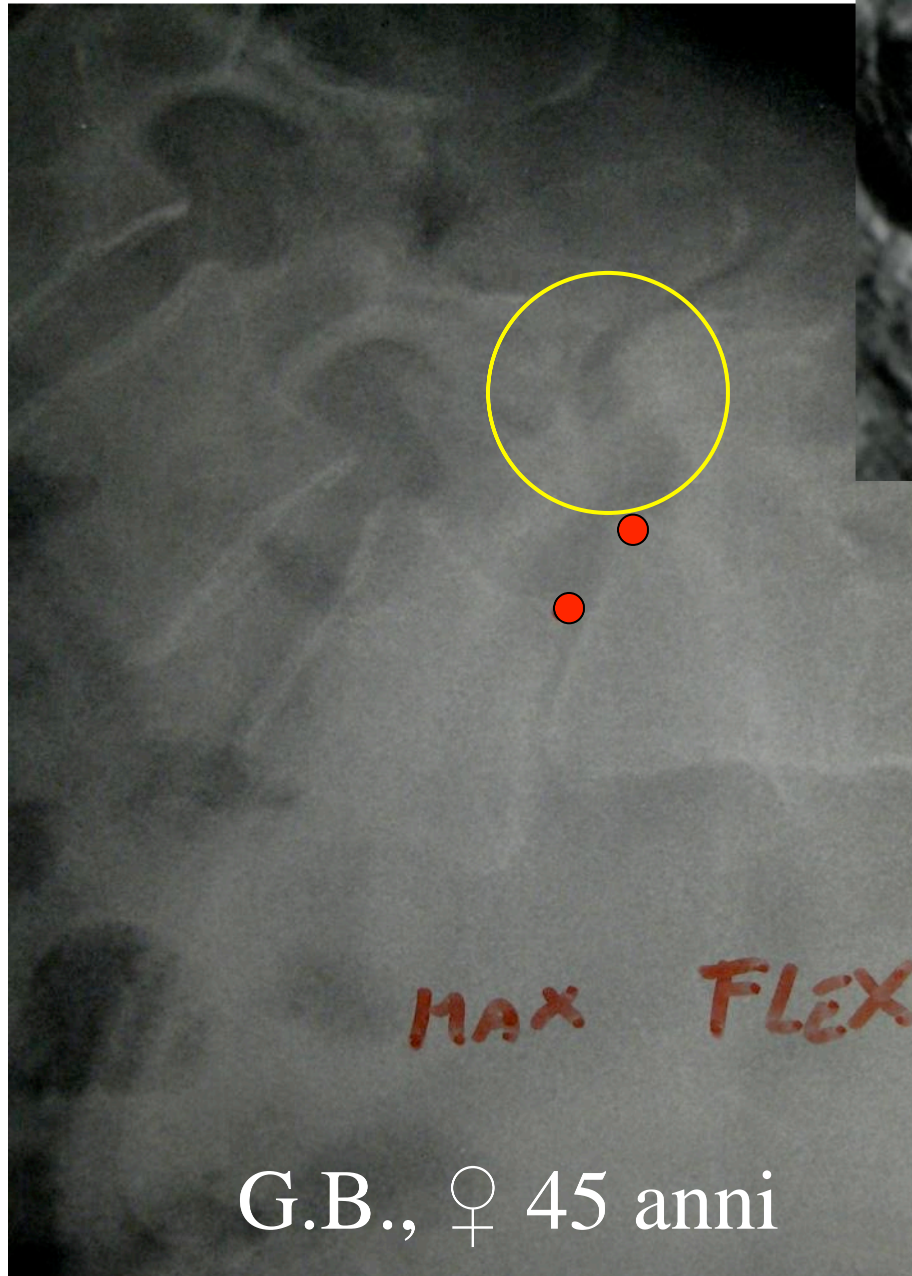
Harms JG, Jeszenszky D (1998) The unilateral, transforaminal approach for posterior lumbar interbody fusion. Orthop Traumatol 6:88–99

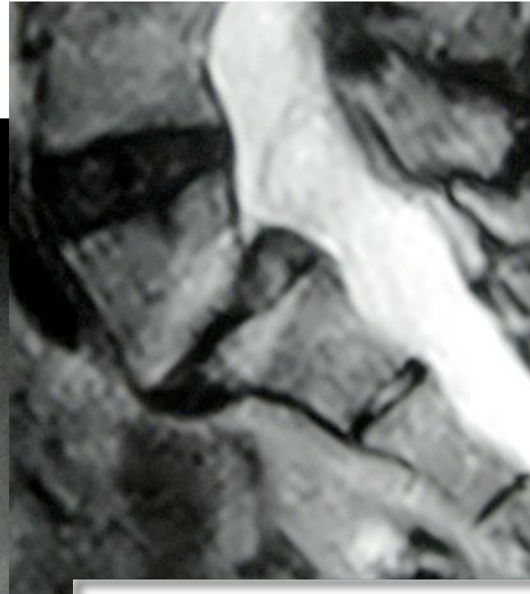




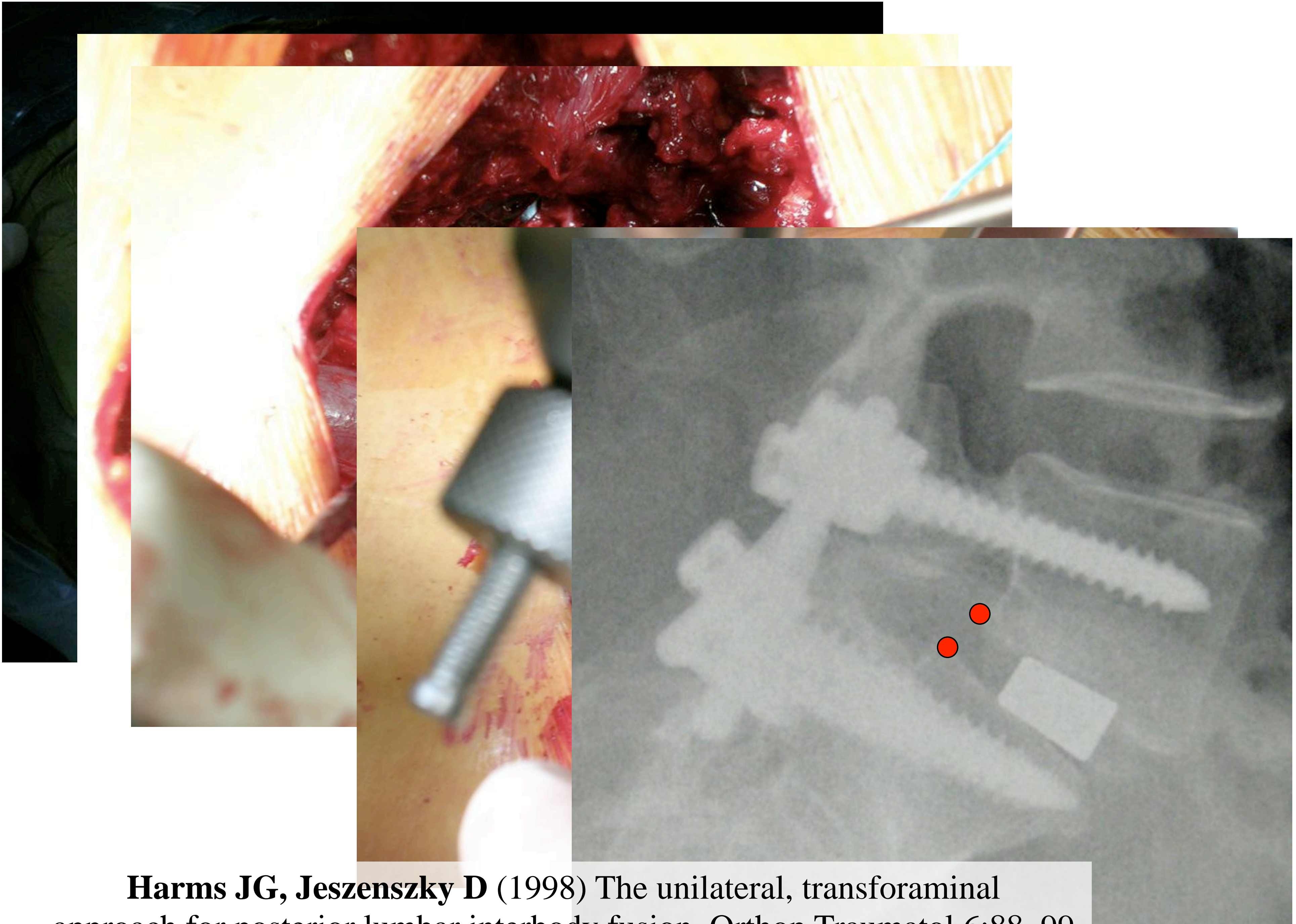


Introduzione unilaterale in distrazione della cage + graft sotto controllo ampliscopico + compressione finale.

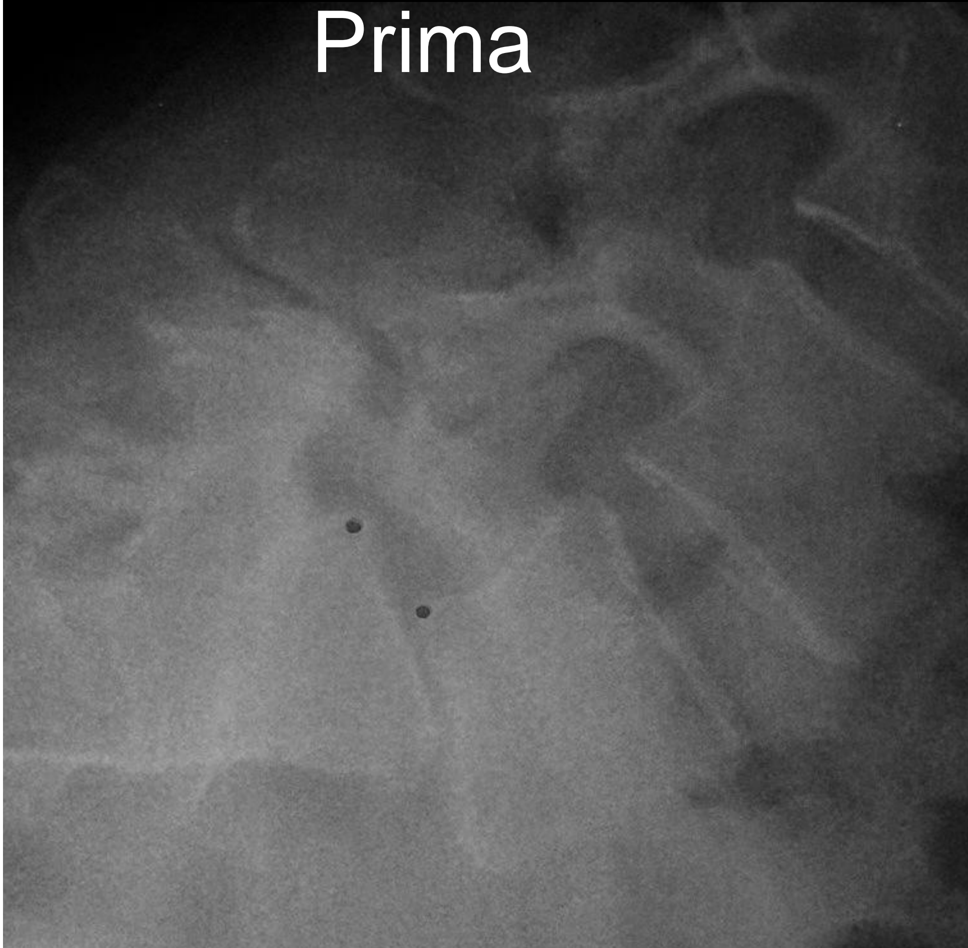


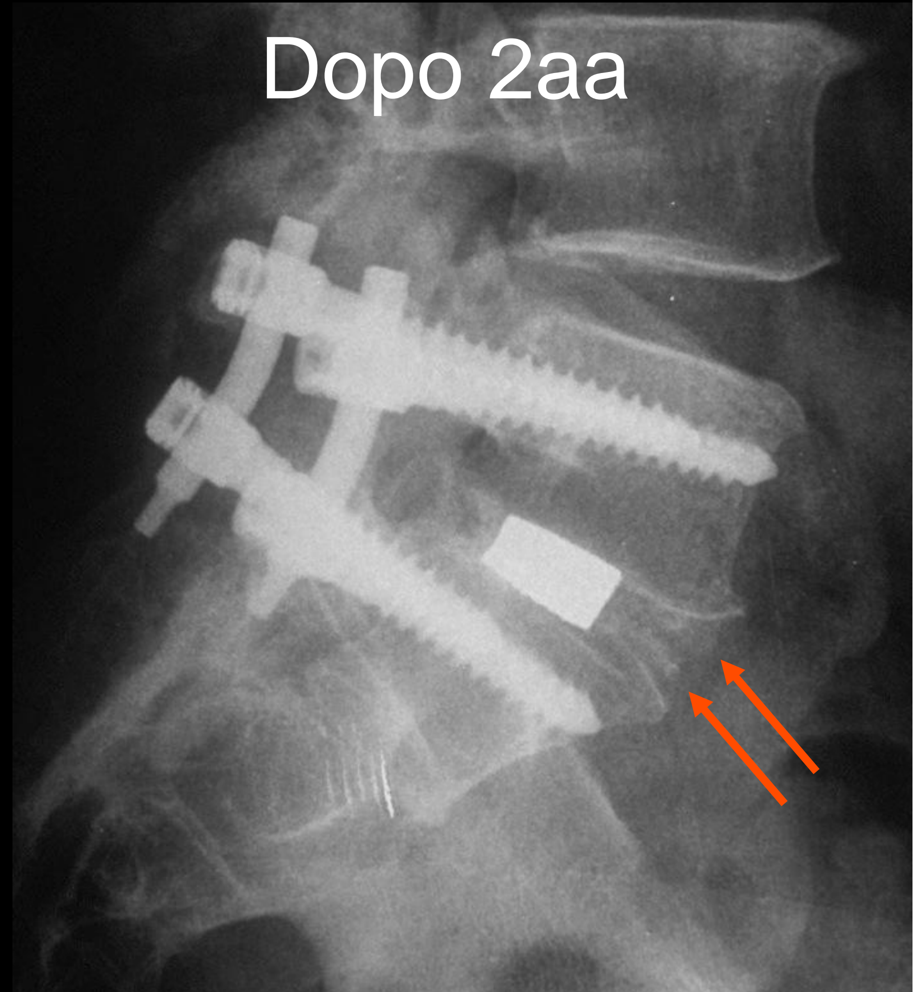


- Discopatia degenerativa grave (IV-V°)
- **Discopatia con instabilità (spondilolistesi)**
- Discopatia in recidiva d'ernia
- Discopatia con instabilità postlaminectomia
- Discopatia con stenosi



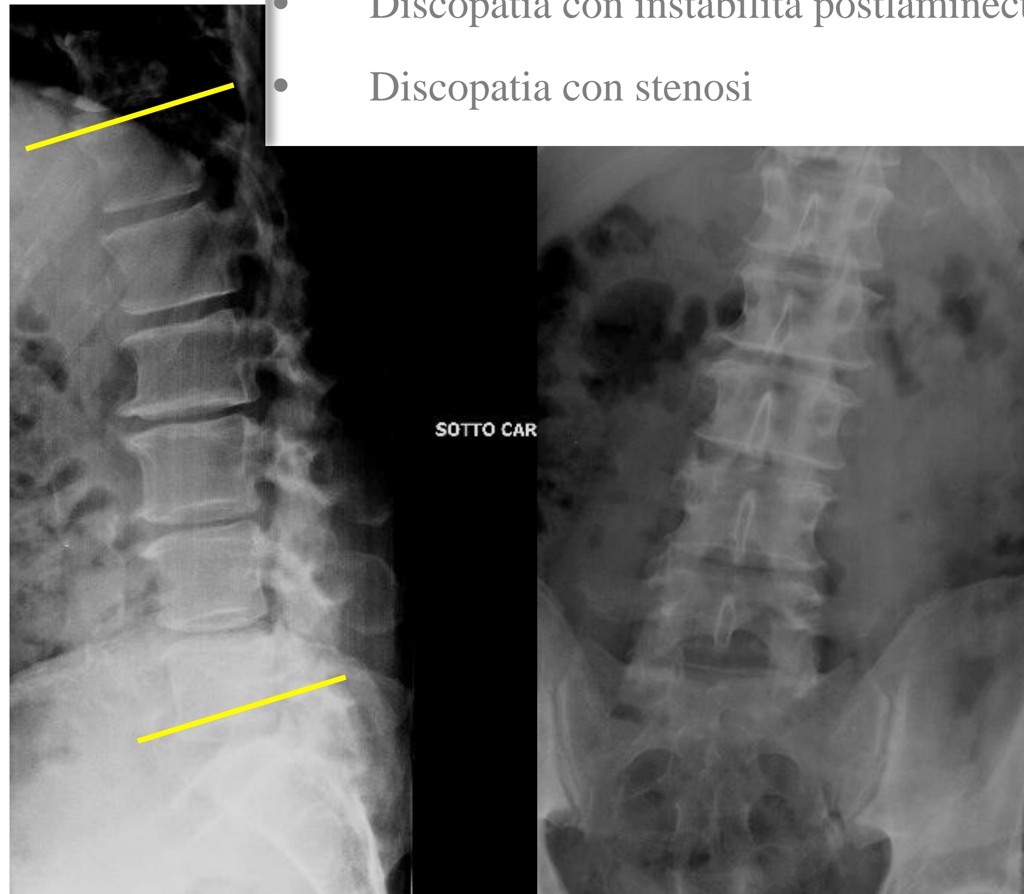
Harms JG, Jeszenszky D (1998) The unilateral, transforaminal approach for posterior lumbar interbody fusion. Orthop Traumatol 6:88–99

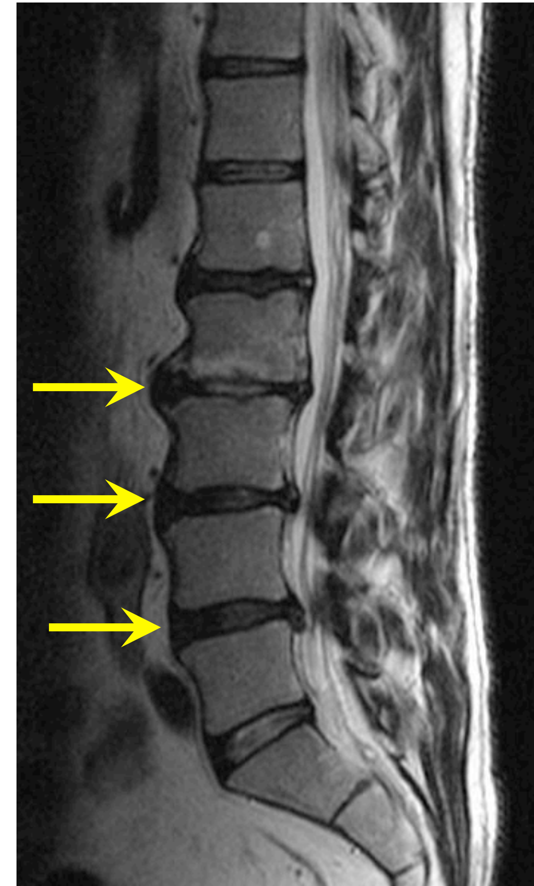




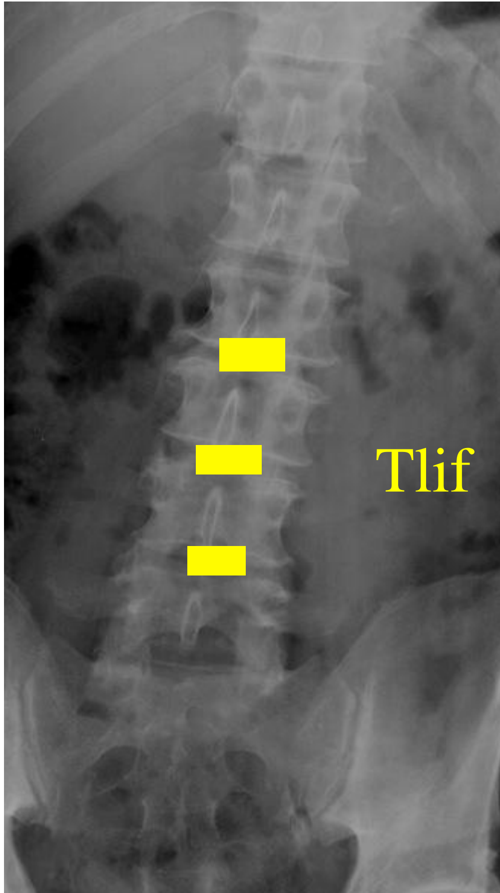
G.B., ♀ 45 anni

- **Discopatia degenerativa grave (IV-V°)**
- Discopatia con instabilità (spondilolistesi)
- Discopatia in recidiva d'ernia
- Discopatia con instabilità postlaminectomia
- Discopatia con stenosi





M.R., ♂ 58 anni. Lombosciatalgia bilat ingravescente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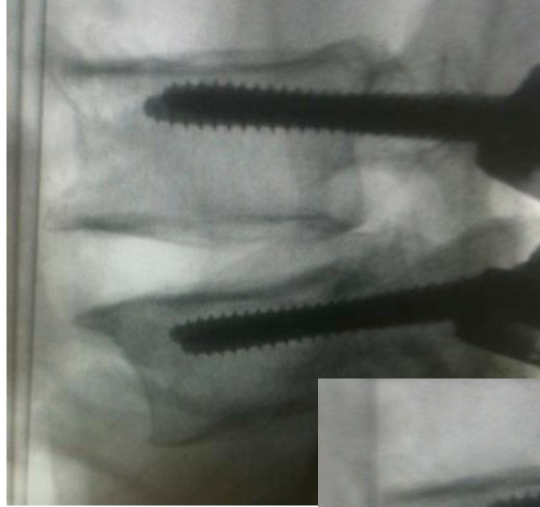
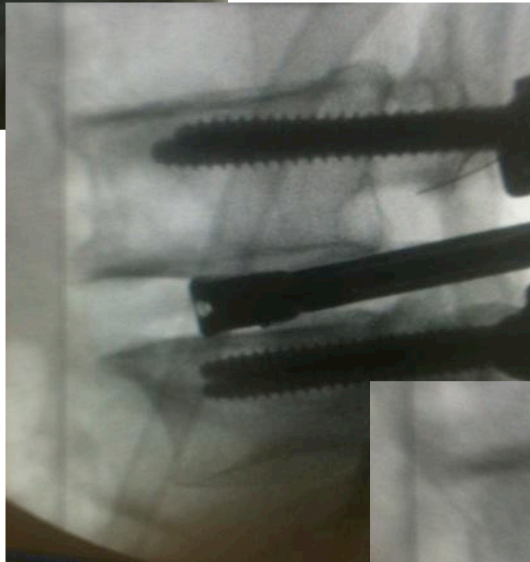
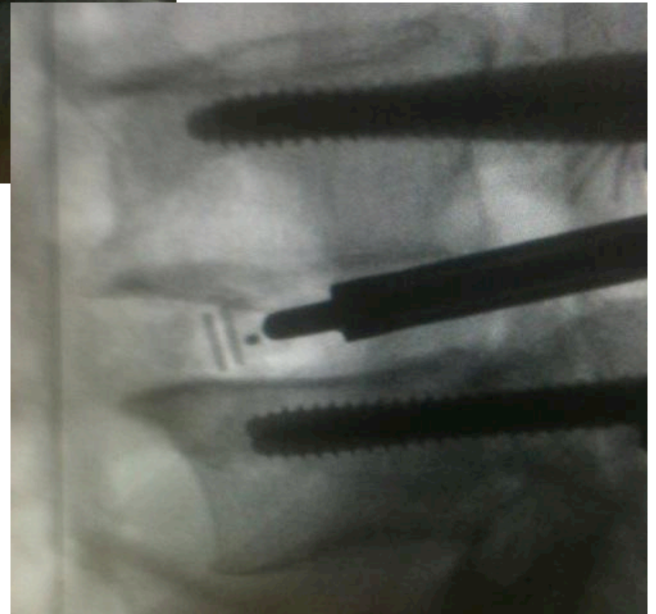
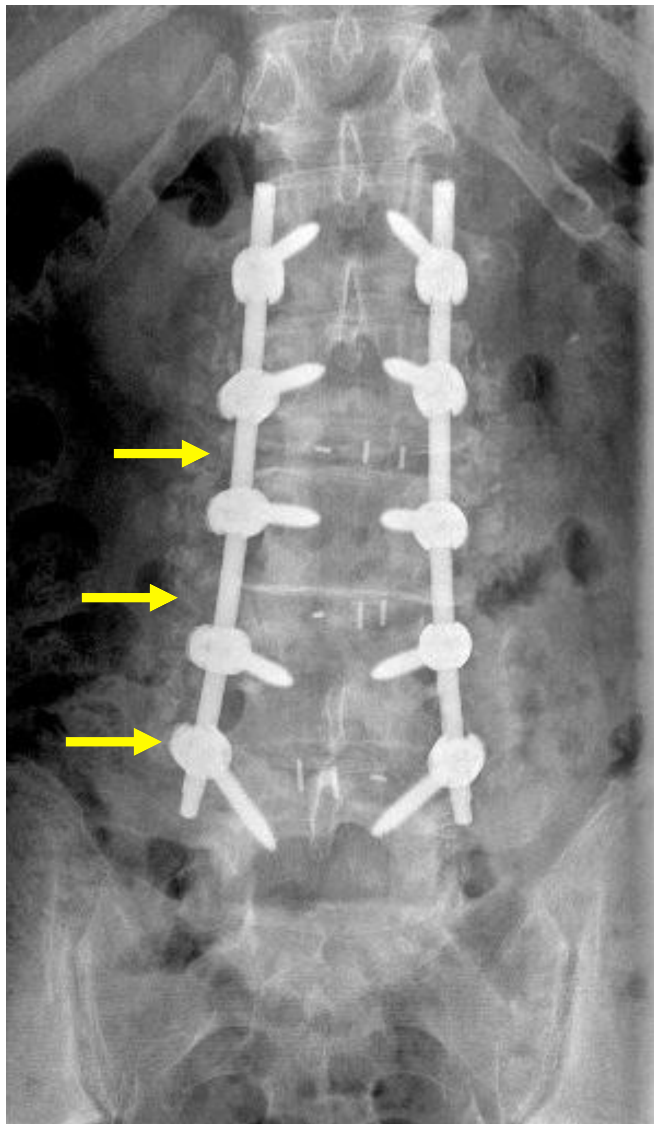
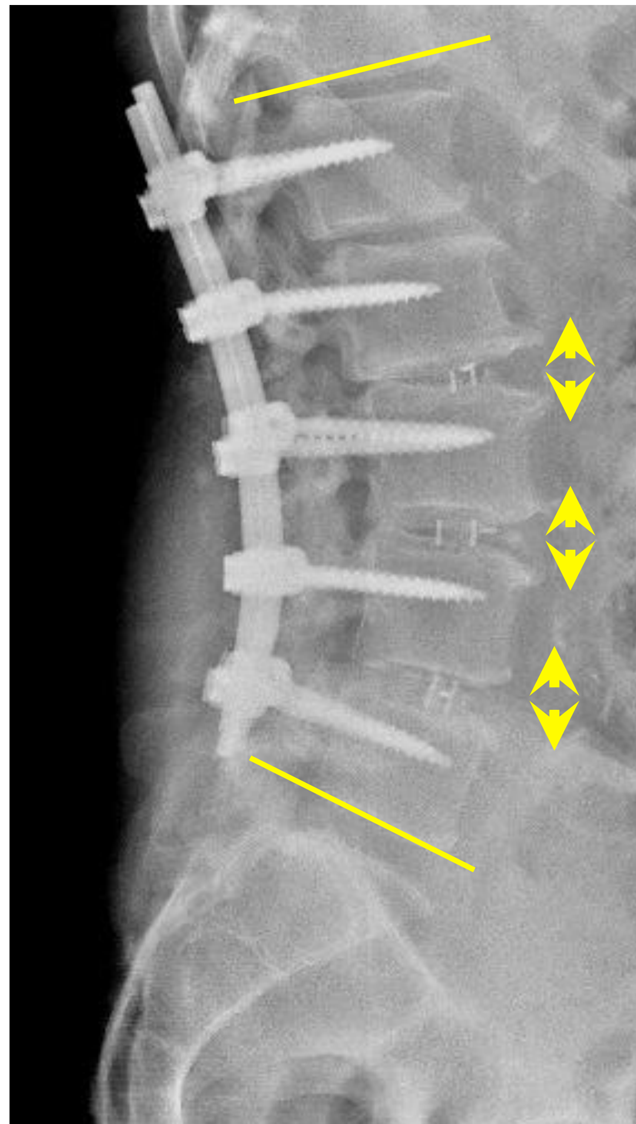




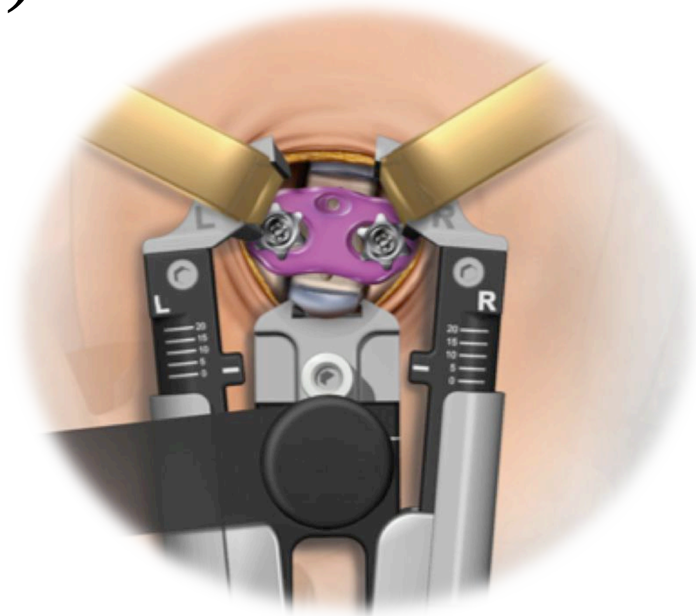




Controllo Postop.

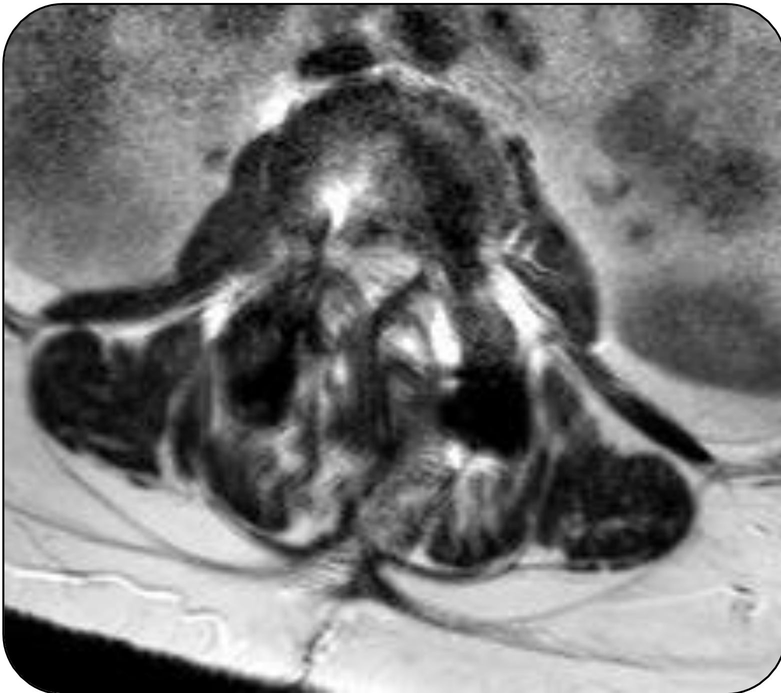
NEW minimal invasive technique

eXtreme lateral interbody fusion (XLIF®)

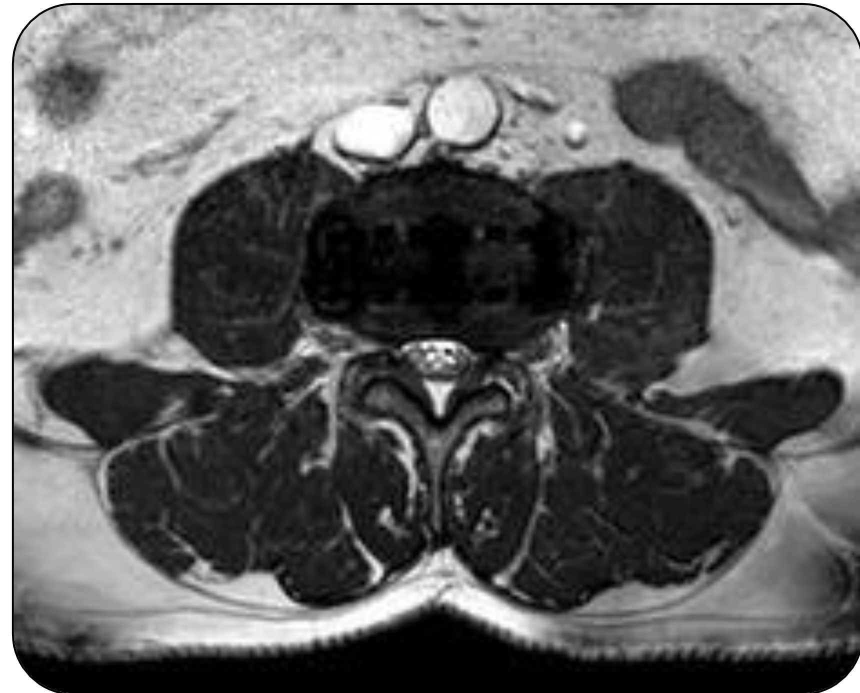


Perché XLIF ?
Minimal muscle damage/no canal invasion

Posterior Approach

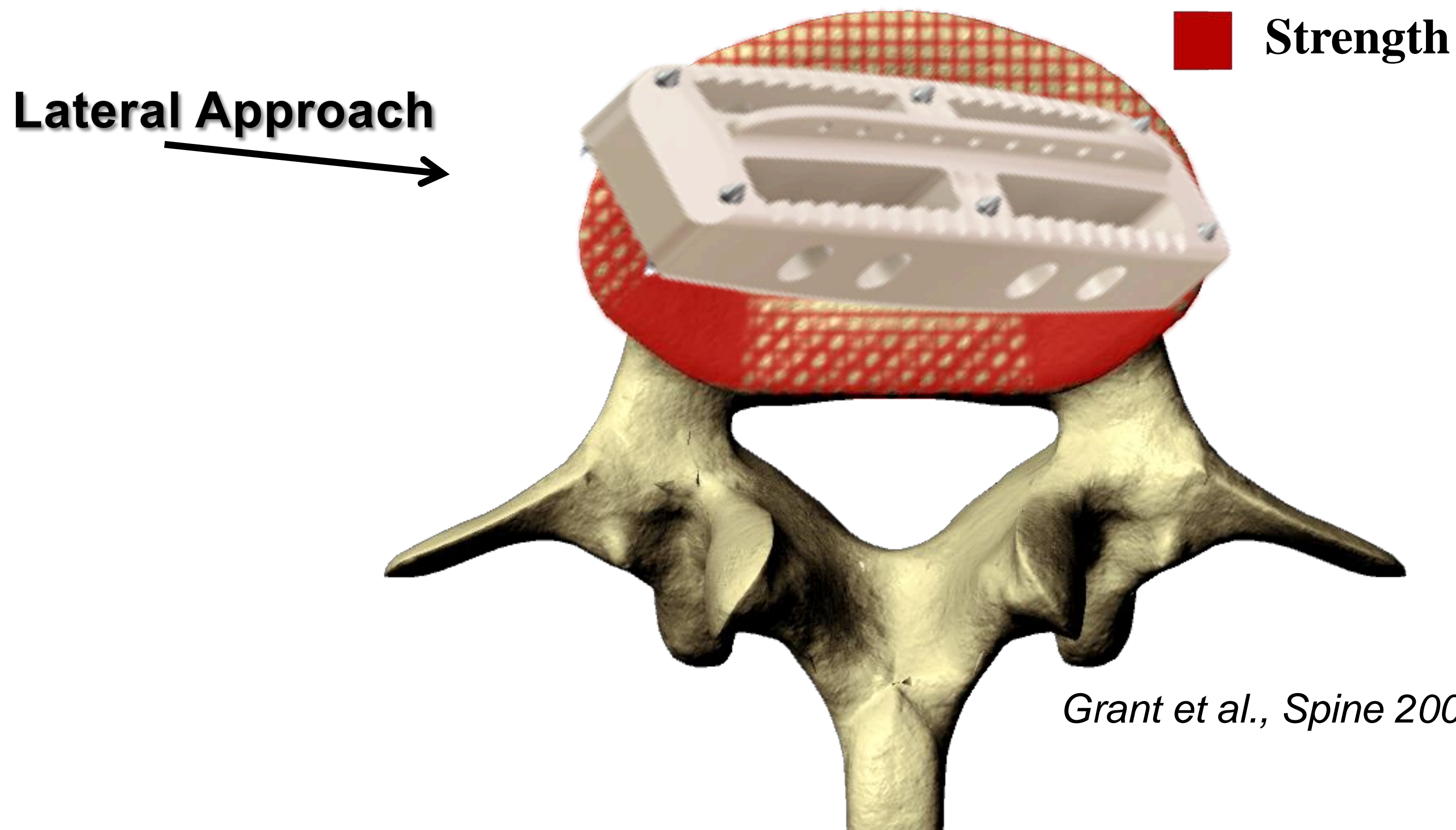


Lateral Approach

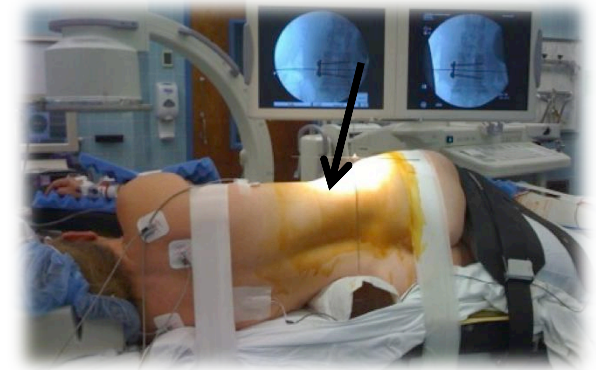


Perché XLIF ?

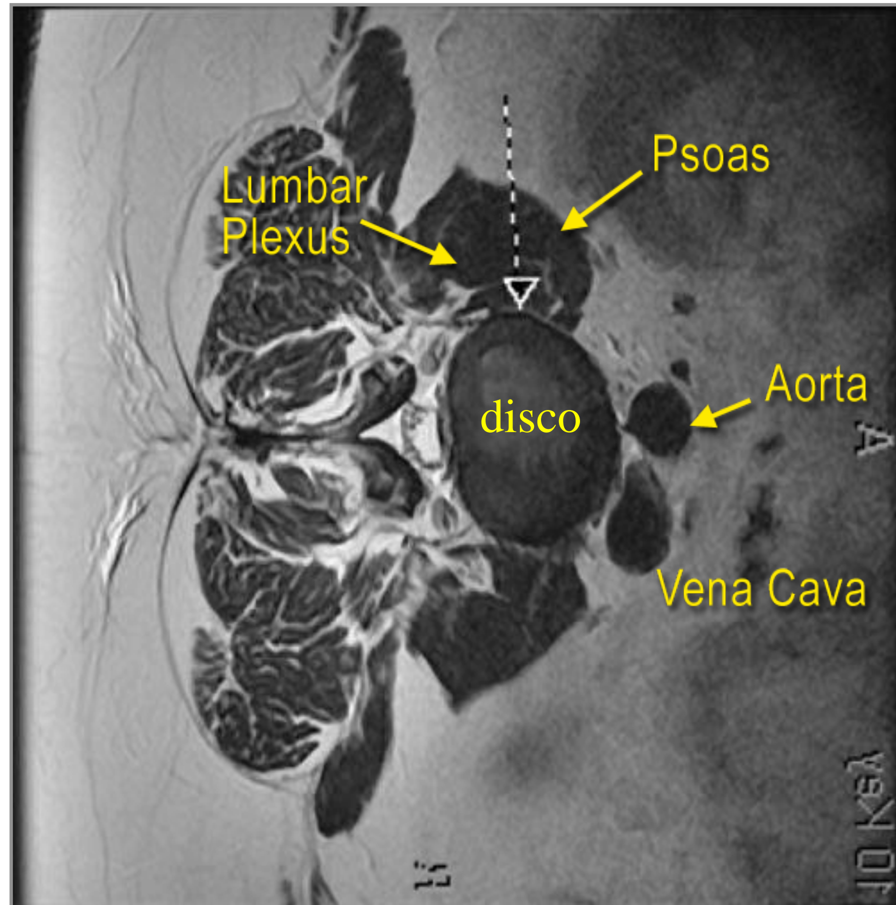
Large cage/support in dense areas



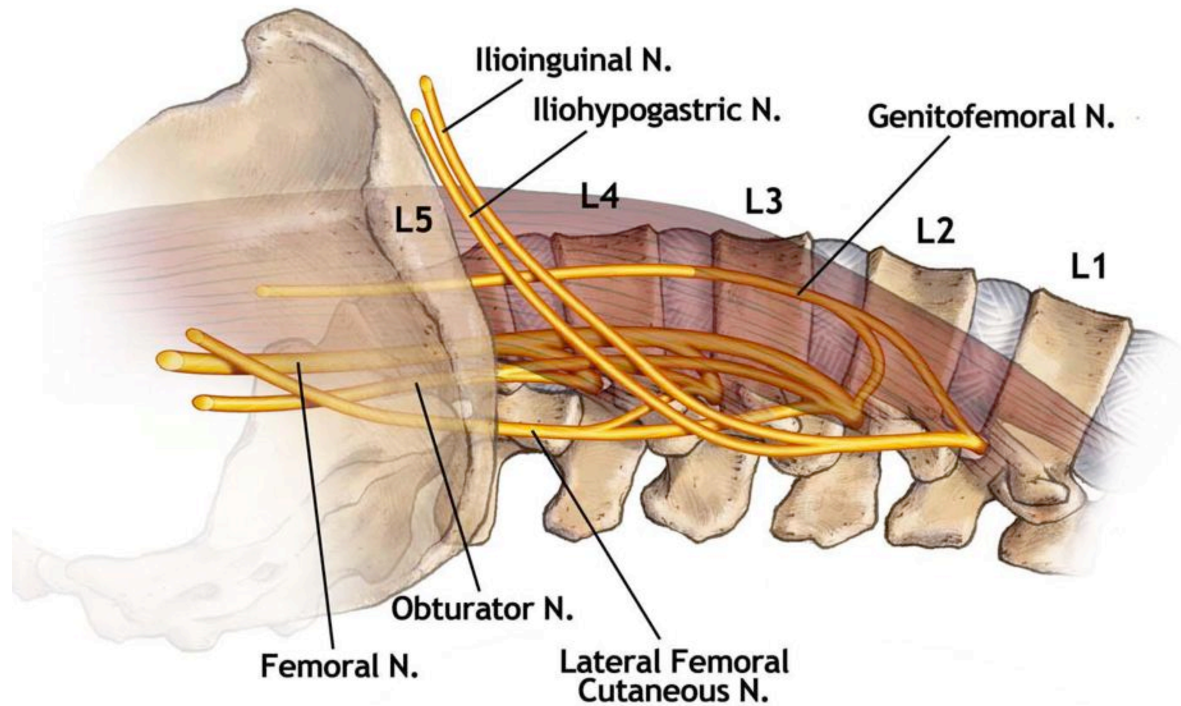
Grant et al., Spine 2001;26(8):889-896



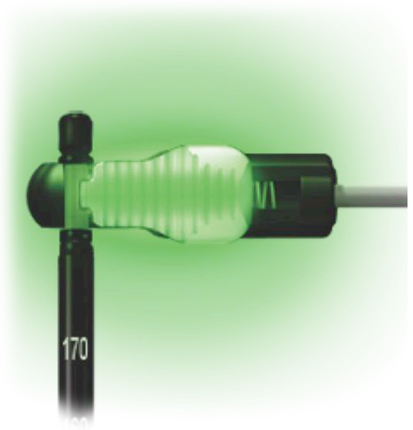
Lateral Approach

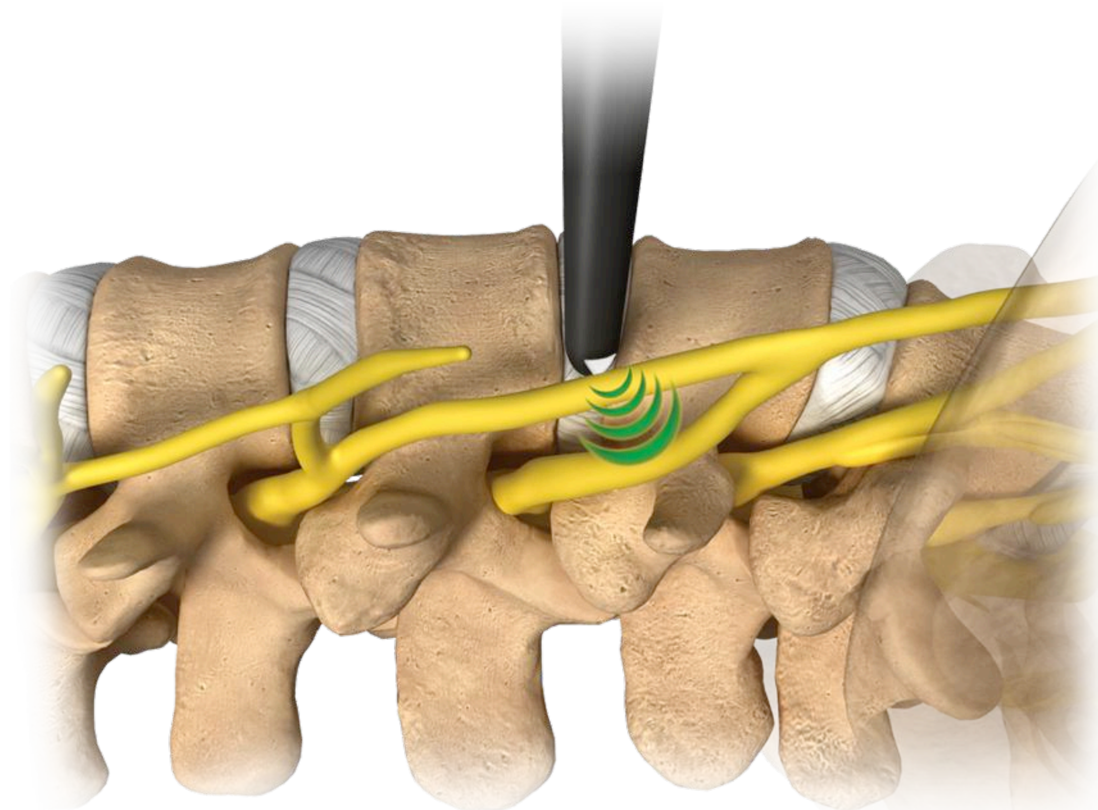


Neuromonitoraggio



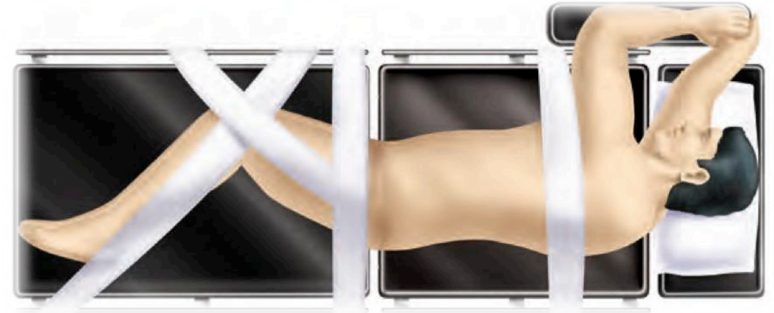
Neuromonitoraggio

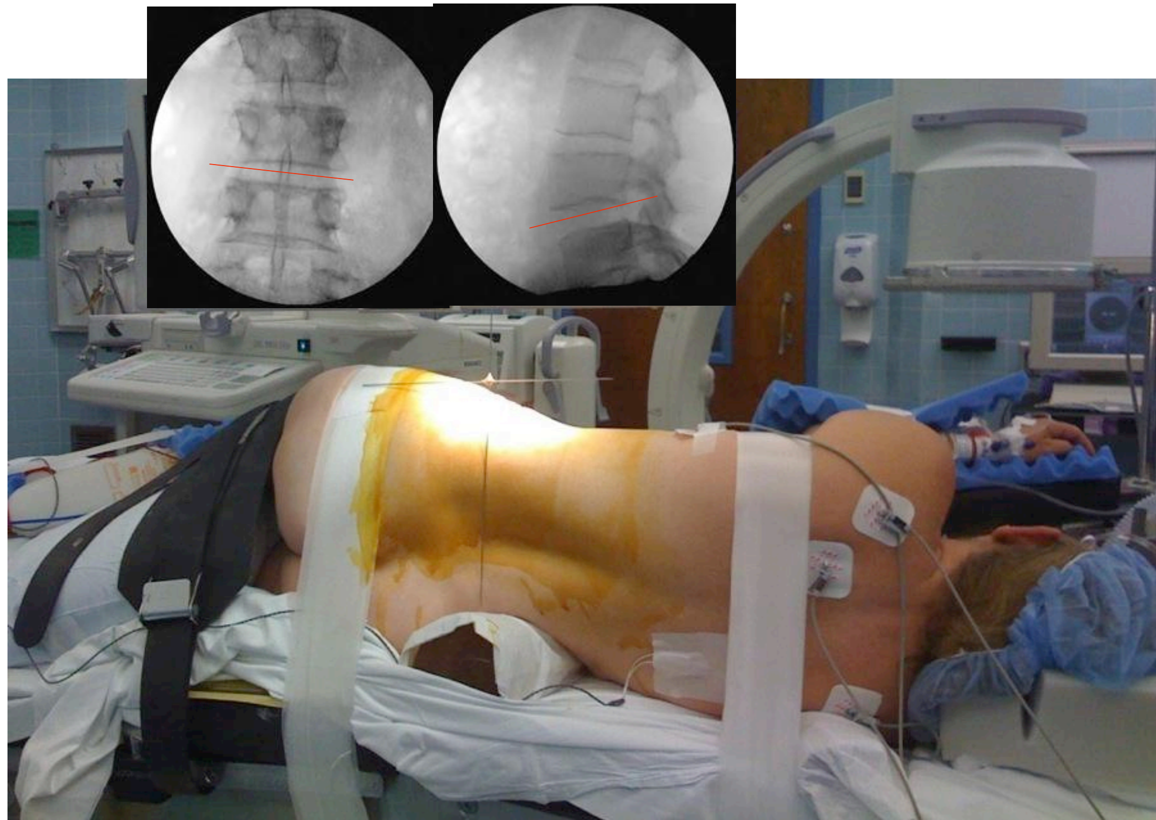




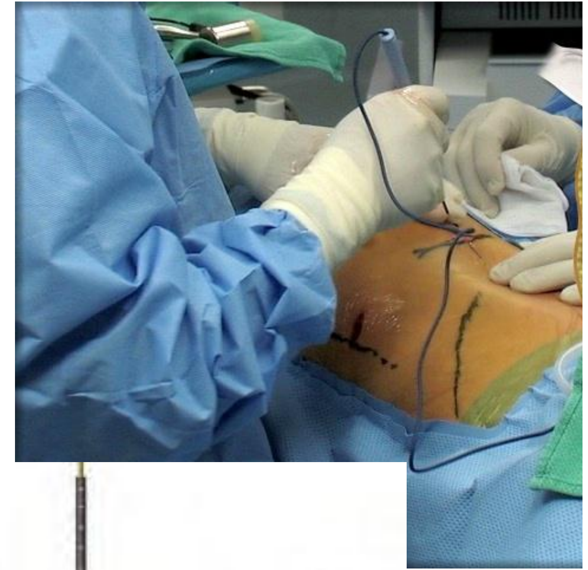
Anterior
Lat. Femoral cut. N
L4
L5
Posterior

XLIF®

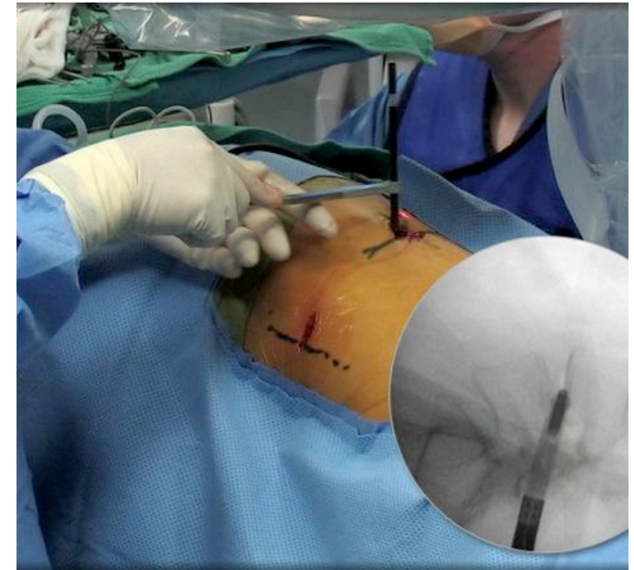


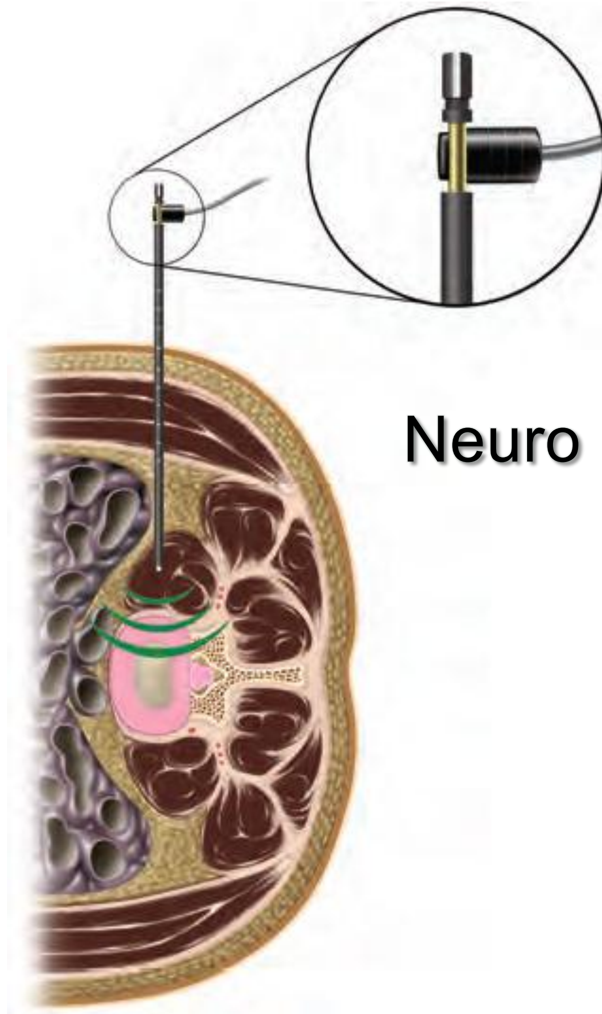


I Step: Retroperitoneal Access



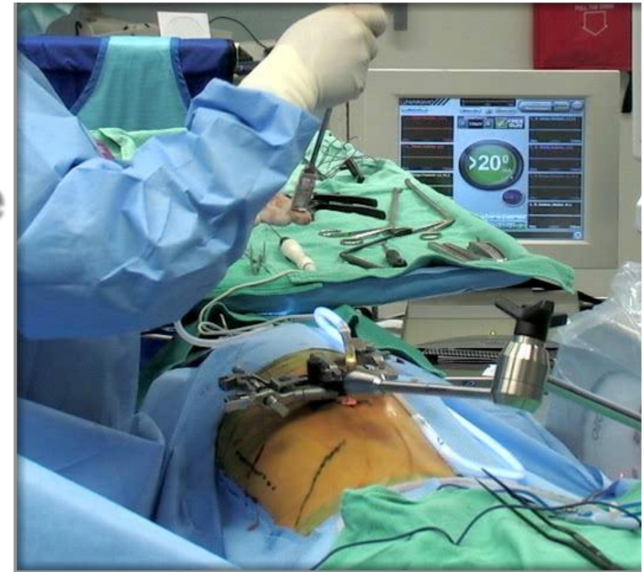
II Step: TransPsoas Approach

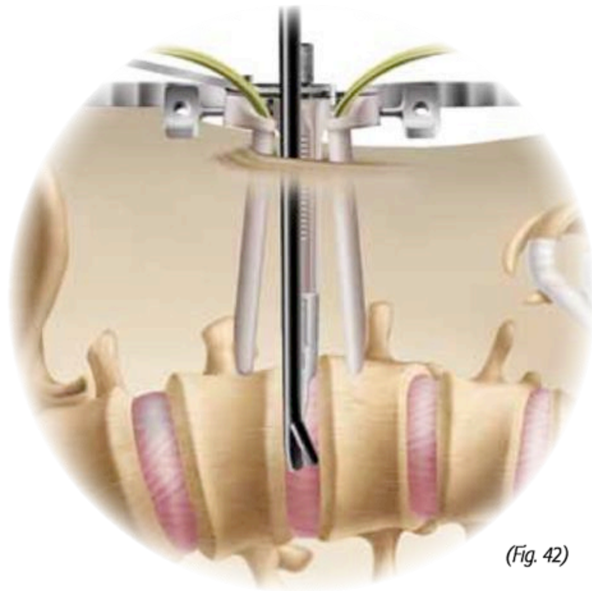




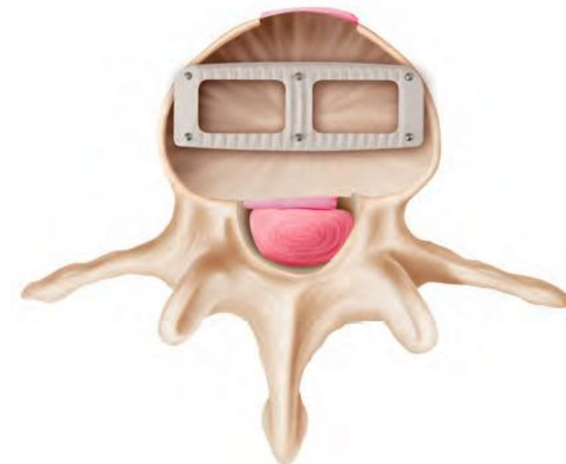
Neuro Monitoring

III Step: Discectomy and cage placement




(Fig. 42)

(Fig. 46)



- Discopatia degenerativa grave (IV-V°)
- Discopatia con instabilità (spondilolistesi)
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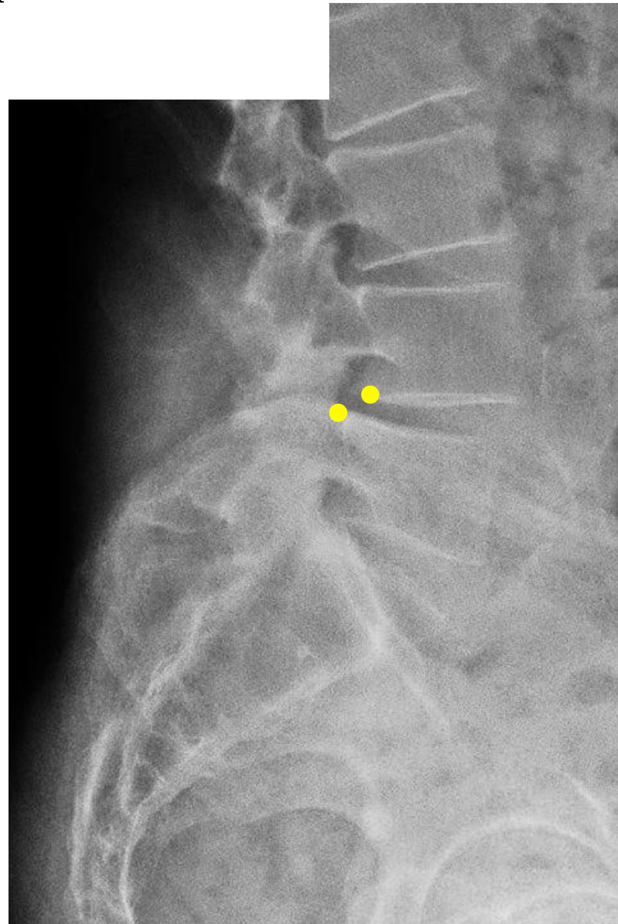
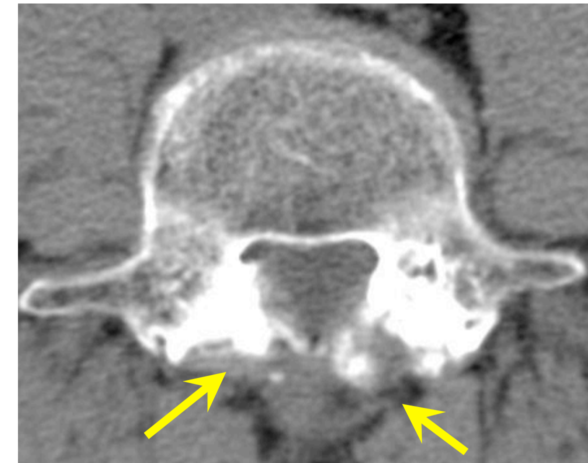
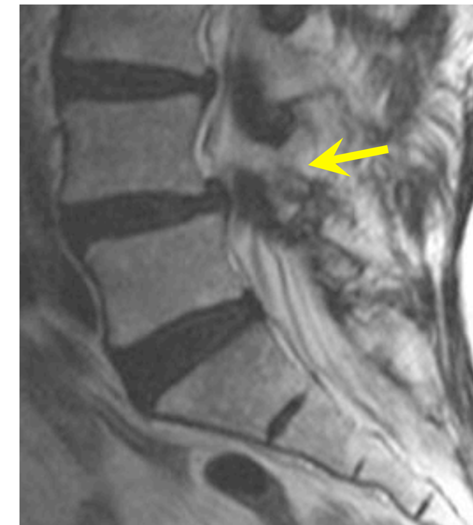
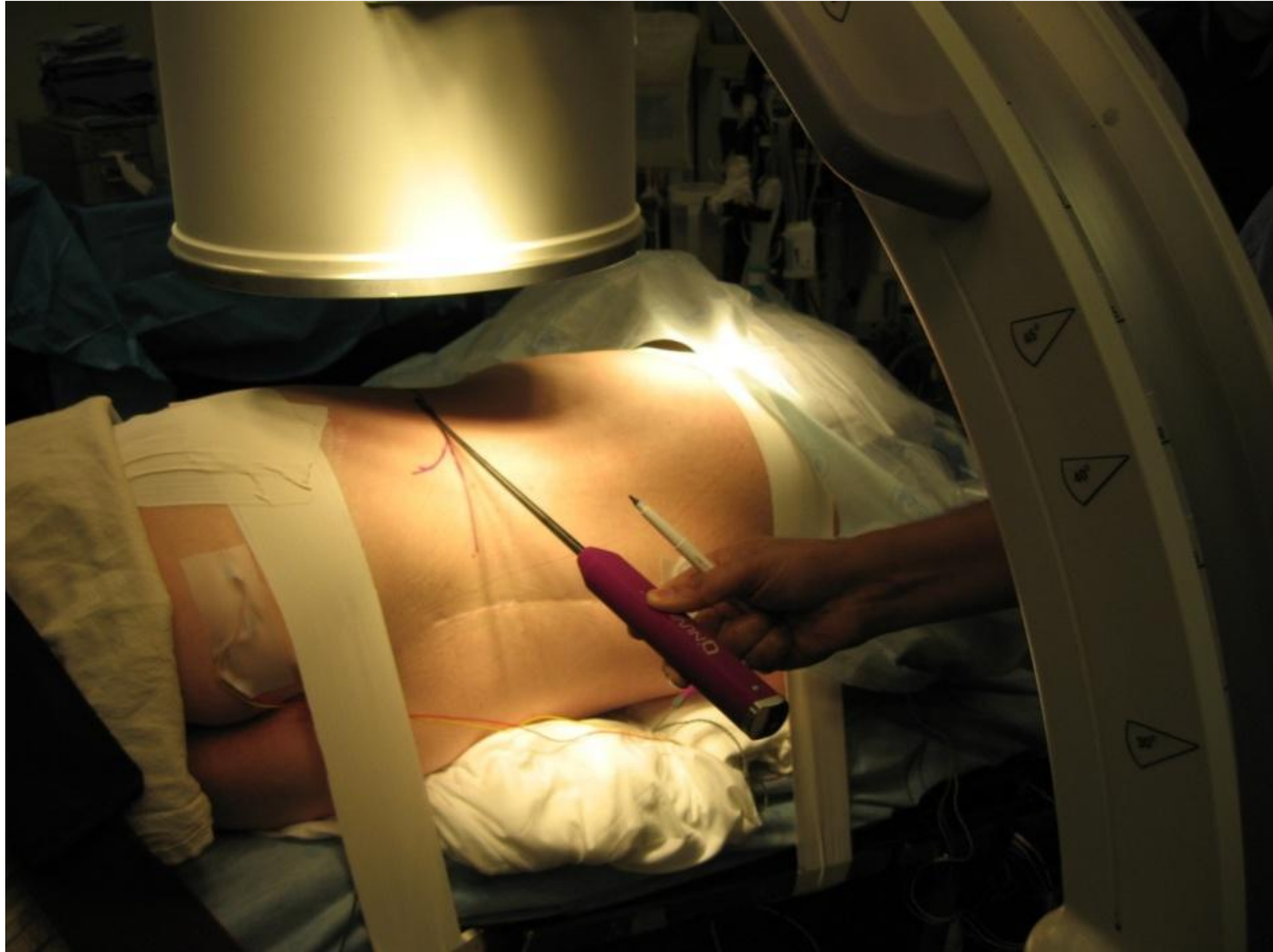
- **Discopatia con instabilità postlaminectomia**
- Discopatia con stenosi

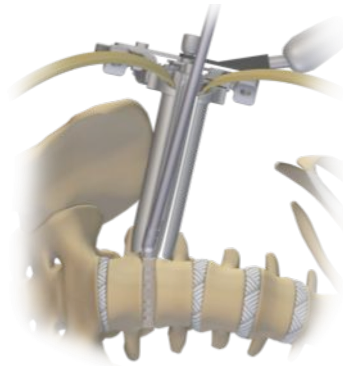


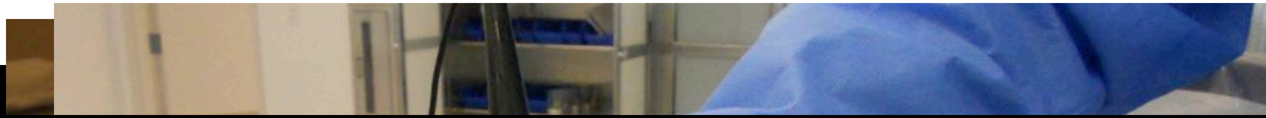


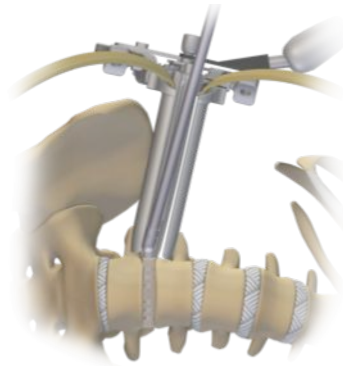


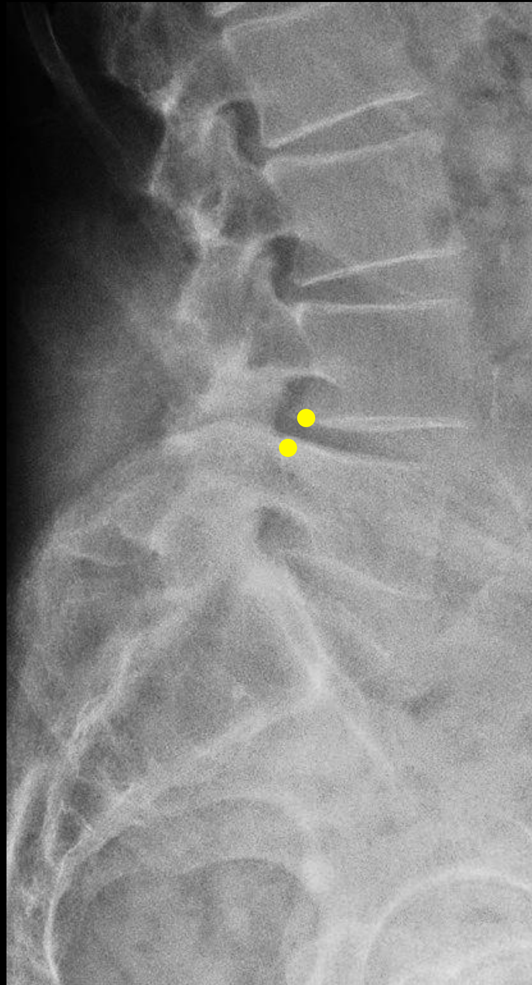
A.L., ♂ 73 anni. Lombosciatalgia bilat (VAS=9)
Claudicatio neurogena, **FBSS** (laminectomia L4-L5)



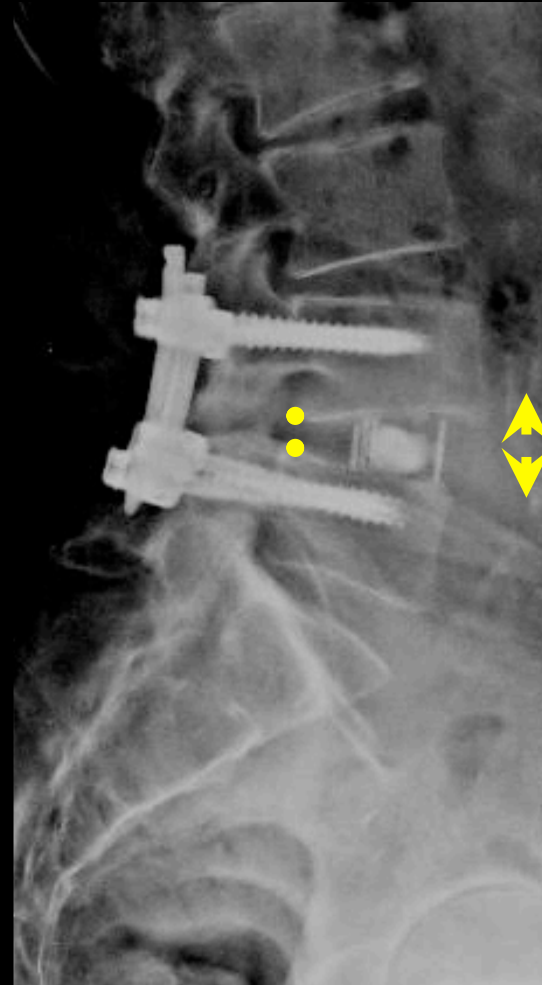






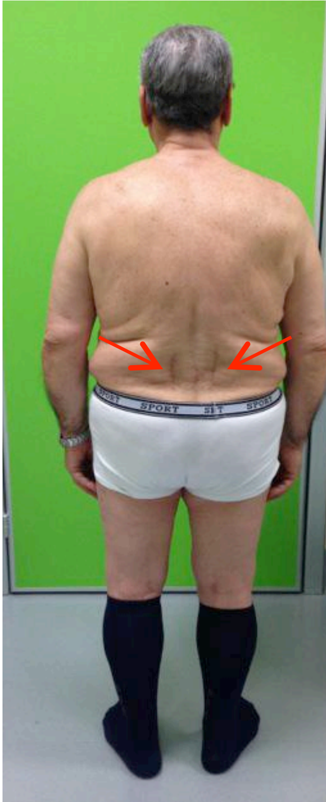


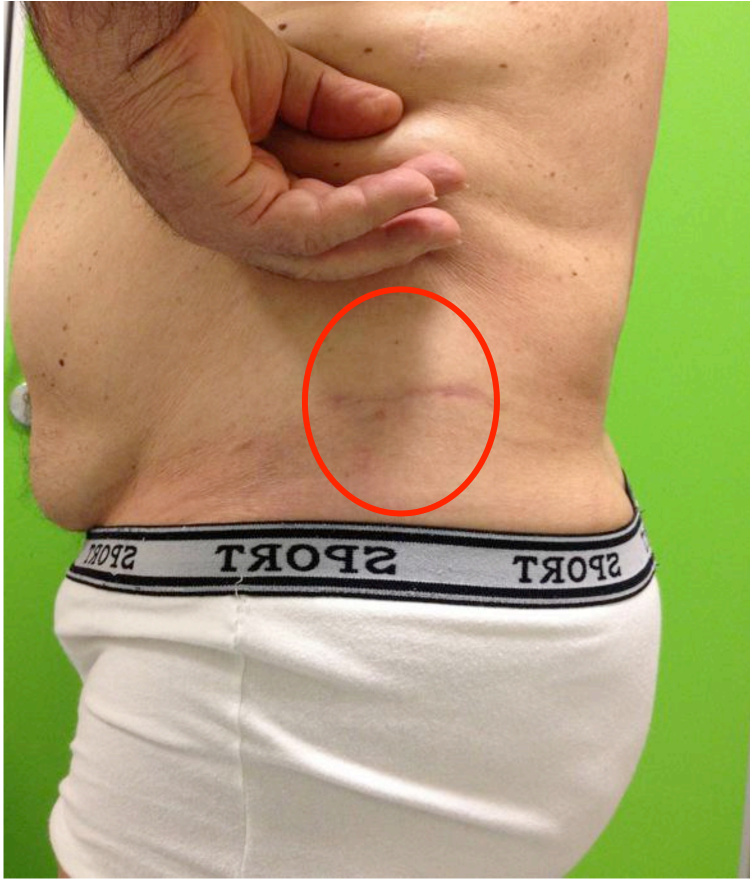
Prima

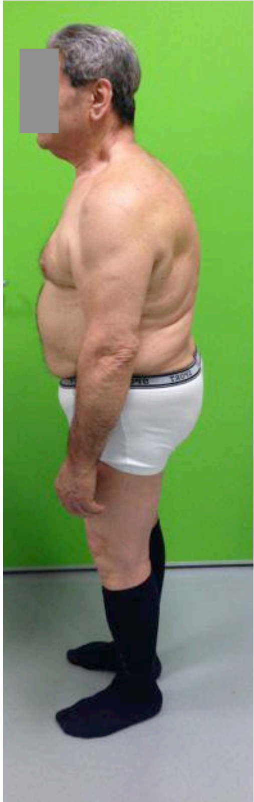


Dopo

M.I.S.S. - minimally invasive spine surgery







Controllo clinico

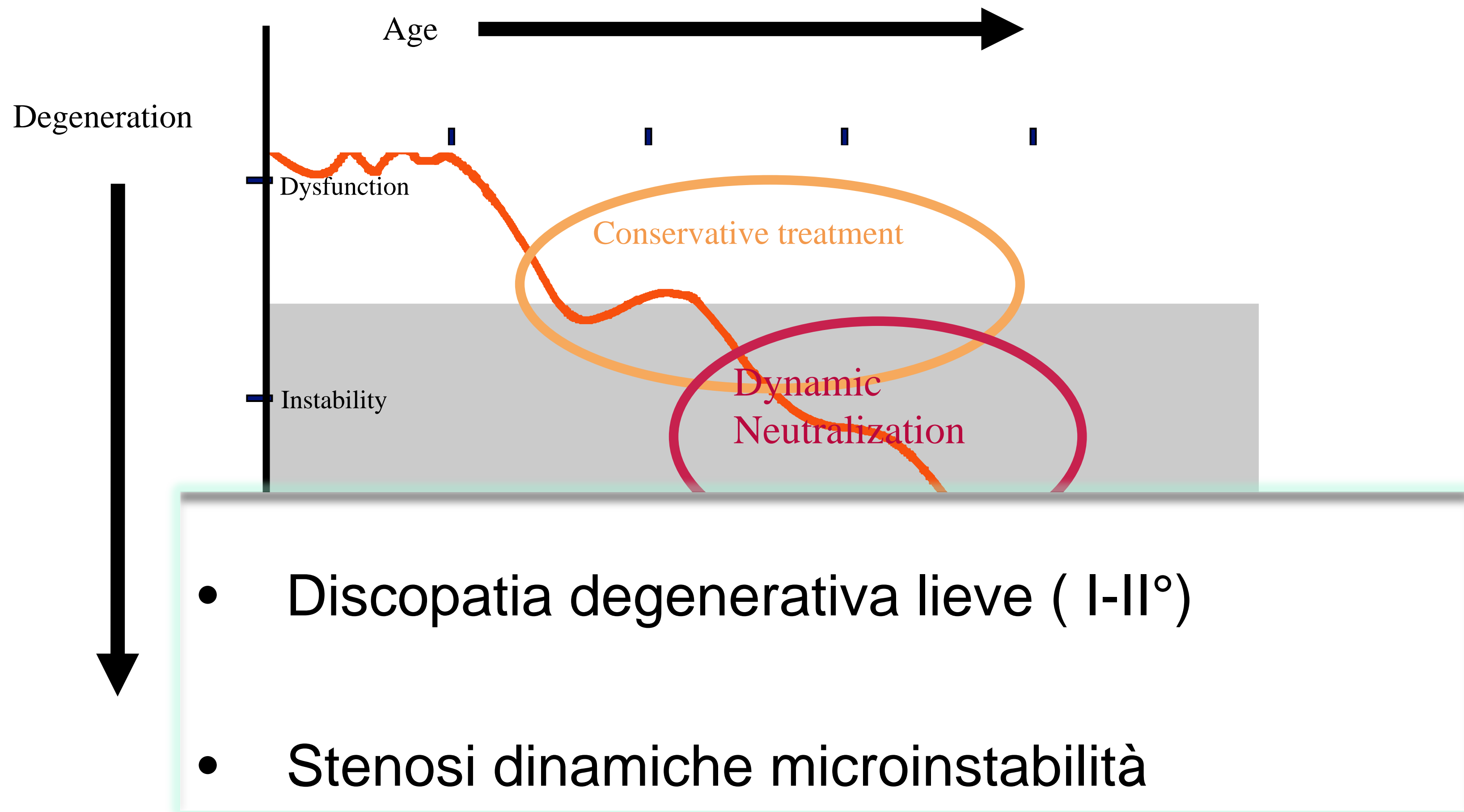
Is Lumbar Arthrodesis necessary ?

- 160 Pt affetti da instabilità vertebrale, trattati con un sistema di stabilizzazione flessibile e non con artrodesi.
- 1 anno FU
- 75% Pt soddisfatti

H. Graf - J. Bone Joint Surg. (Br.); 74-B Supp. I: pp. 69. 1992

QUALE CHIRURGIA?

NO FUSION



Stabilizzazione dinamica

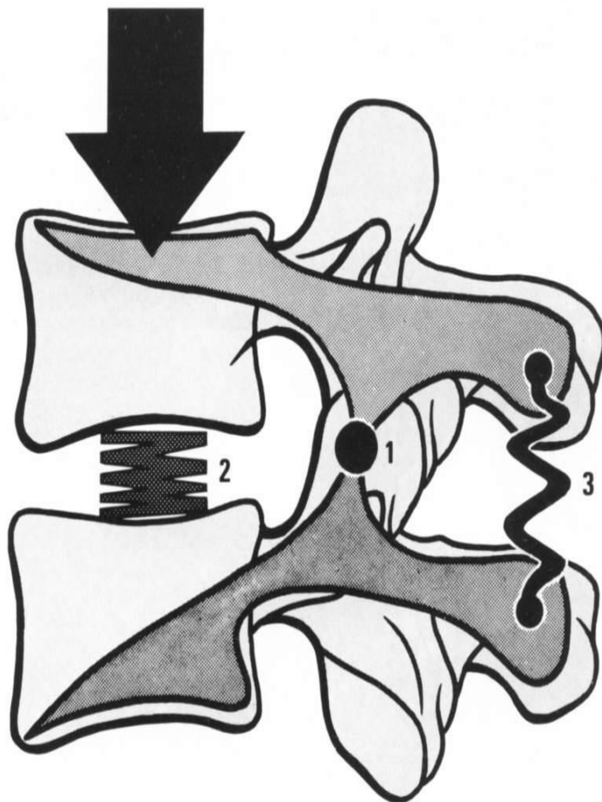
SISTEMA DI NEUTRALIZZAZIONE DINAMICA A PRESA PEDUNCOLARE

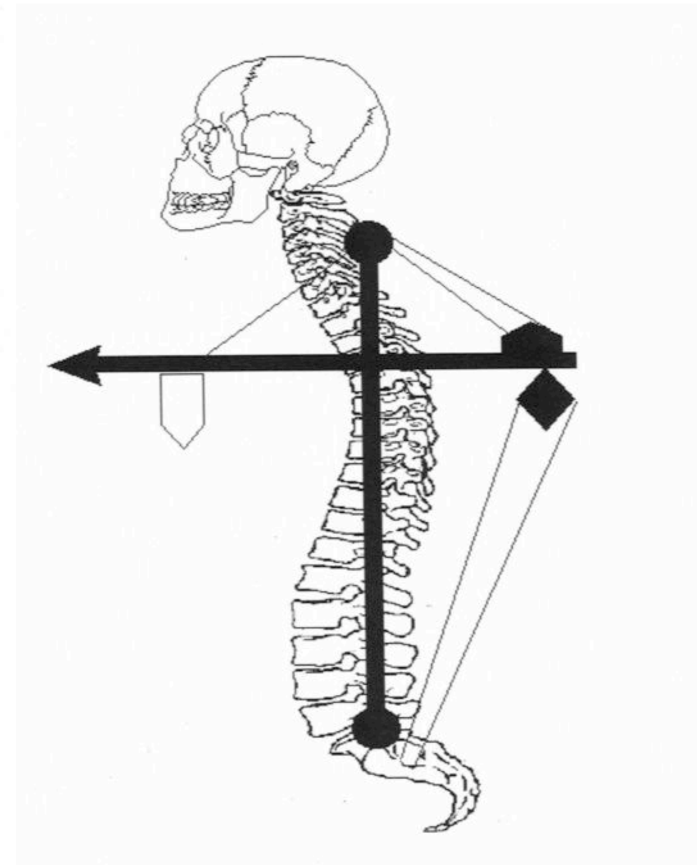
Neutralizzazione Dinamica

DYNESYS

- VITI PEDUNCOLARI in lega di titanio a sezione conica
- SPAZIATORI in policarbonato controllano estensione
- CORDA STABILIZZANTE in polietilene controlla la flessione

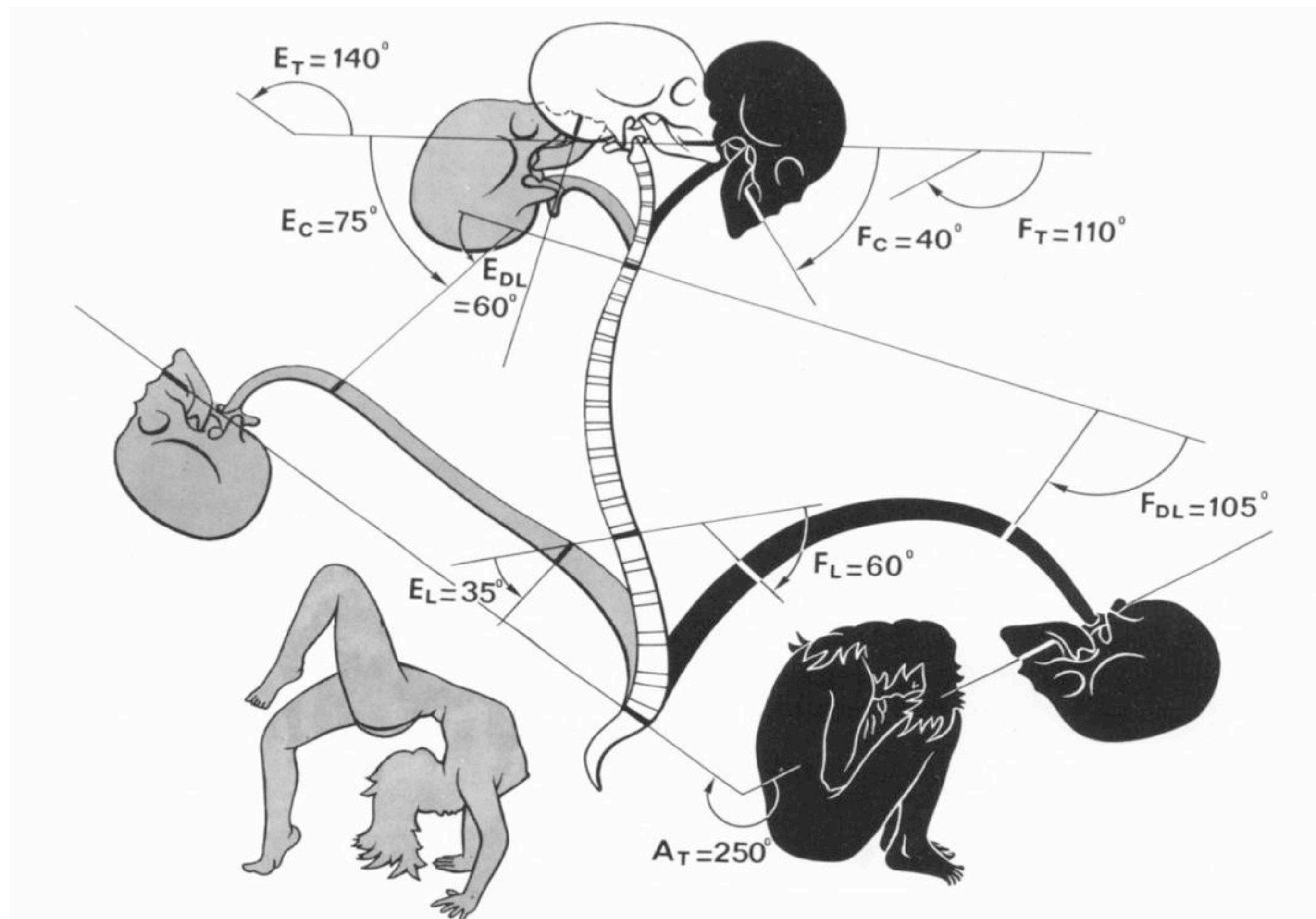
Riallineare e stabilizzare dinamicamente i livelli instabili

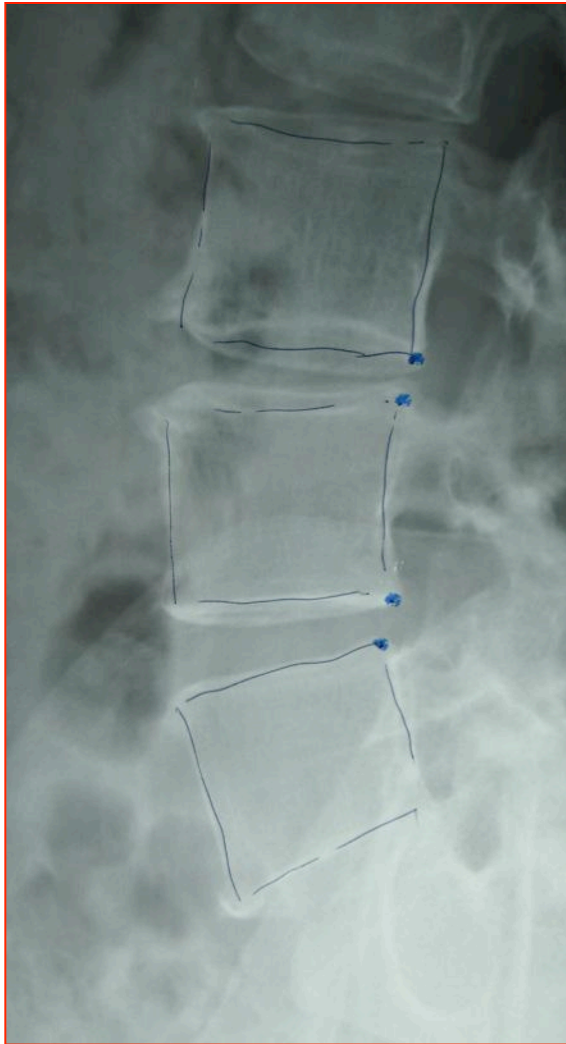


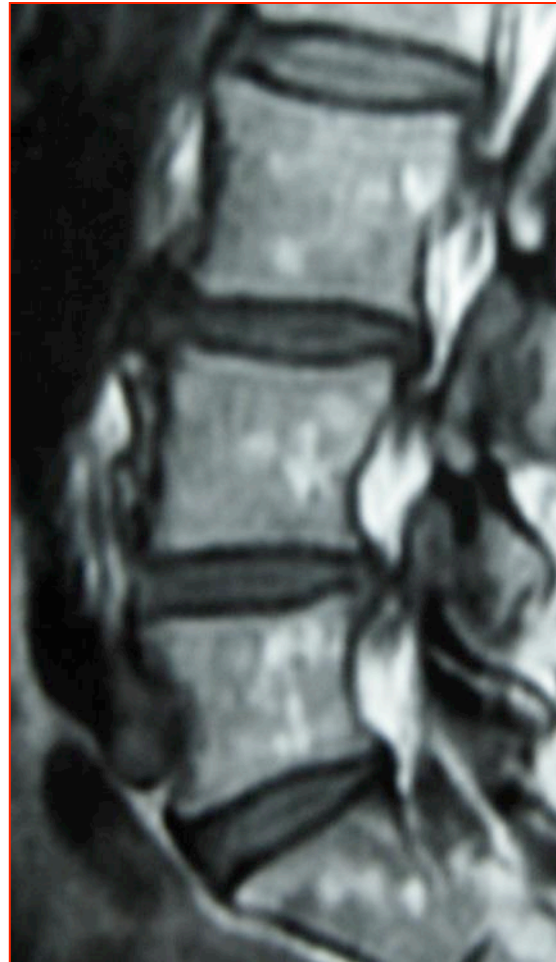


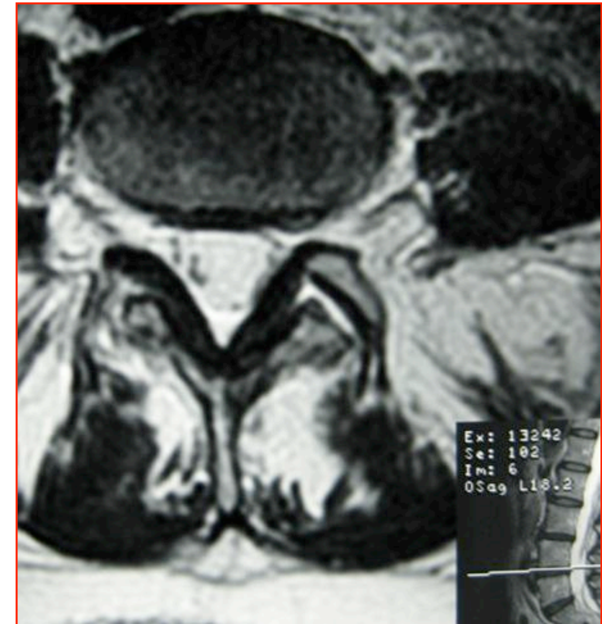
GARANTIRE UN CERTO ANGOLO DI MOVIMENTO

eliminando la discinesia discovertebrale
(II stadio Kirkarldy-instabilità)



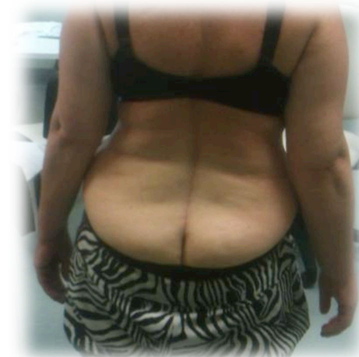


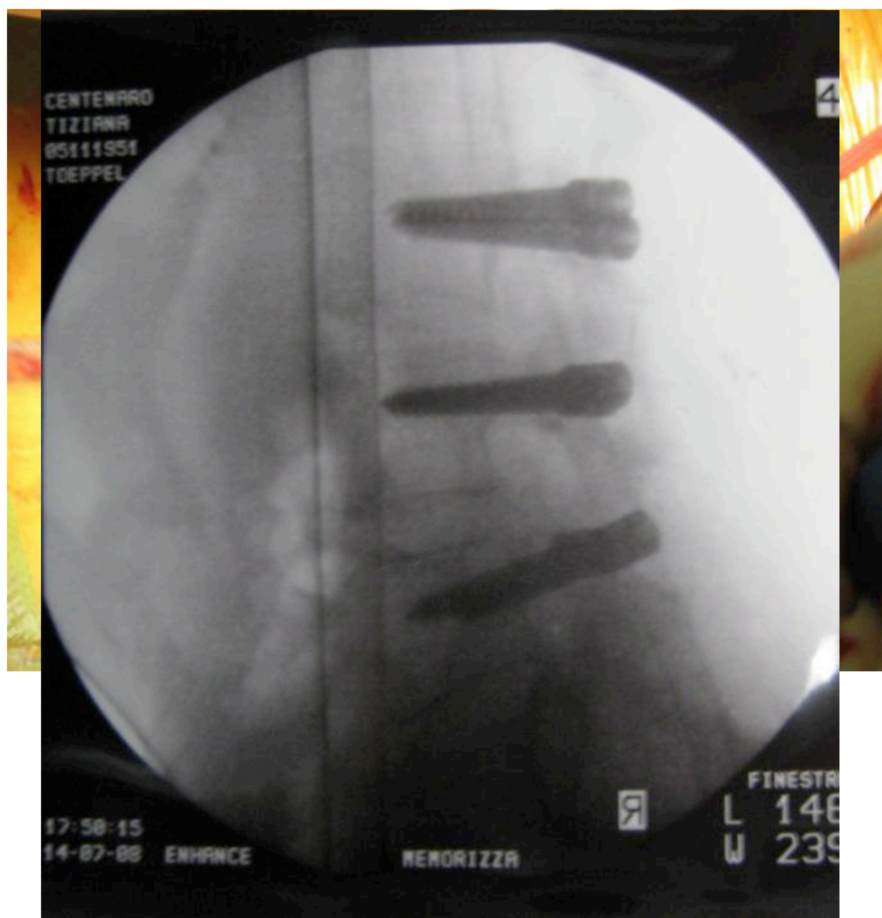


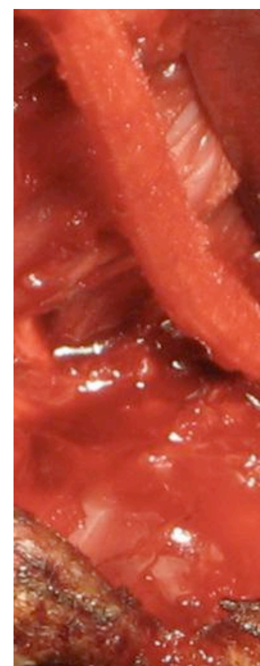


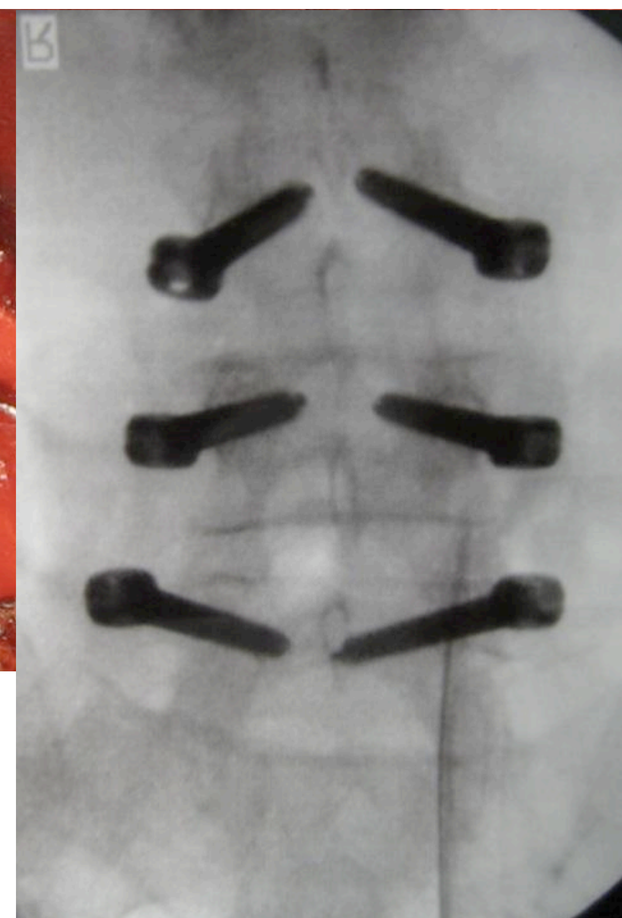
T.C., ♀ 62 anni
Lombalgia cronica ingravescente

Motion preservation









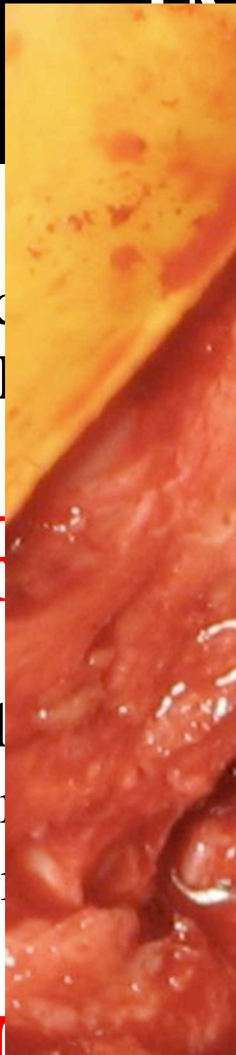
IM…

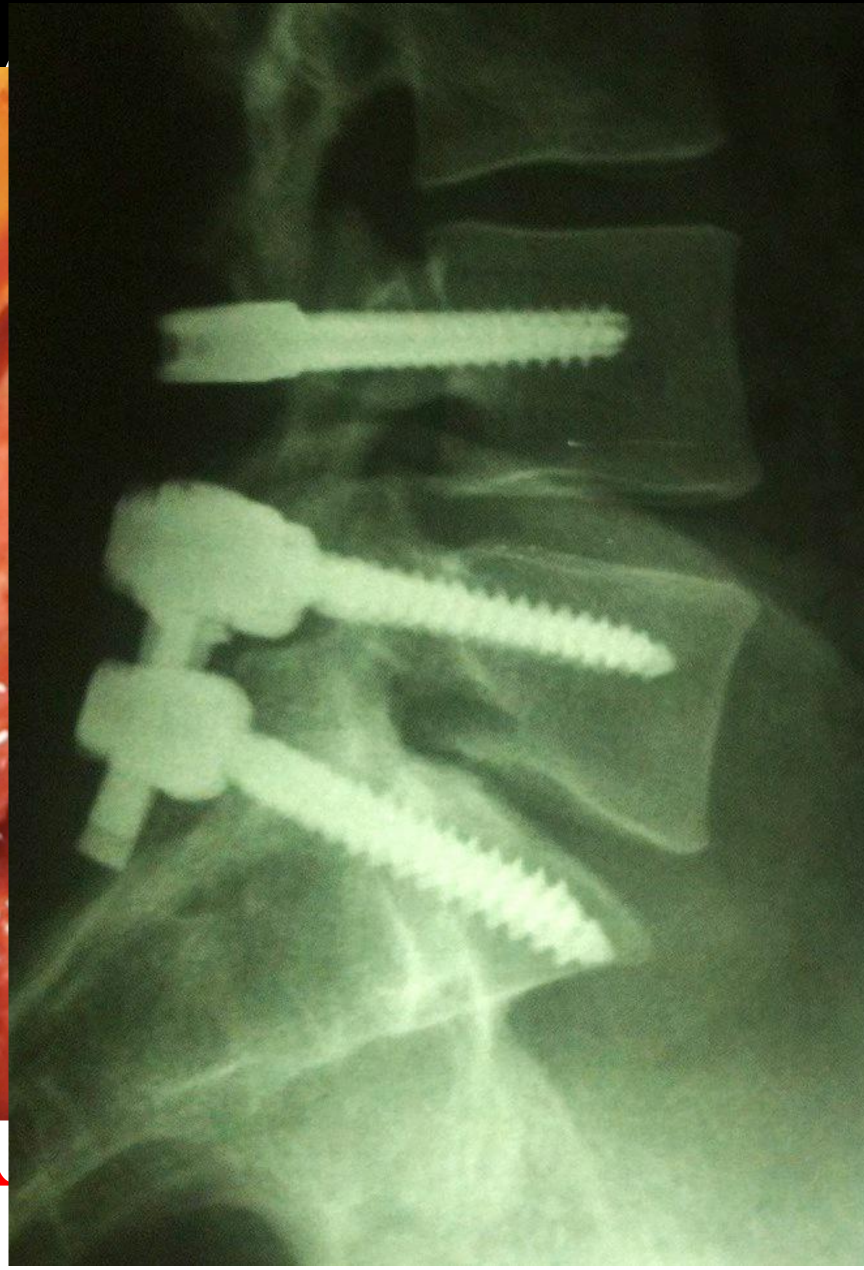
- Grave …
  L5-S1 …

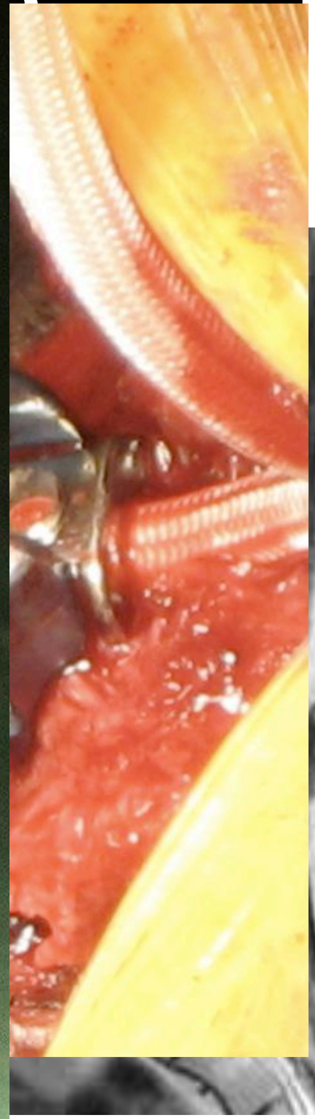
AI…

- A livell…
  degene…
  protrus…

DINA…







Definitive Conclusion

RIGHT INDICATION

RIGHT PATIENT

RIGHT SURGEON

Grazie...