

REUMA
T
2005



L'invecchiamento
osteo-articolare
Bone and joint aging

Milan Marriott Hotel
Via Washington, 66 - Milano

29 SETTEMBRE - 1 OTTOBRE 2005

Indicazioni, limiti,
risultati e
complicanze
della protesi di
caviglia

M. Guelfi



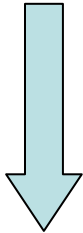
GOST

GENOA ORTHOPAEDIC SURGEONS & TRAUMATOLOGISTS



Caviglia dolorosa

- zoppia
- dolore
- limitazione funzionale
- fallimento cure conservative



**Soluzione
chirurgica**

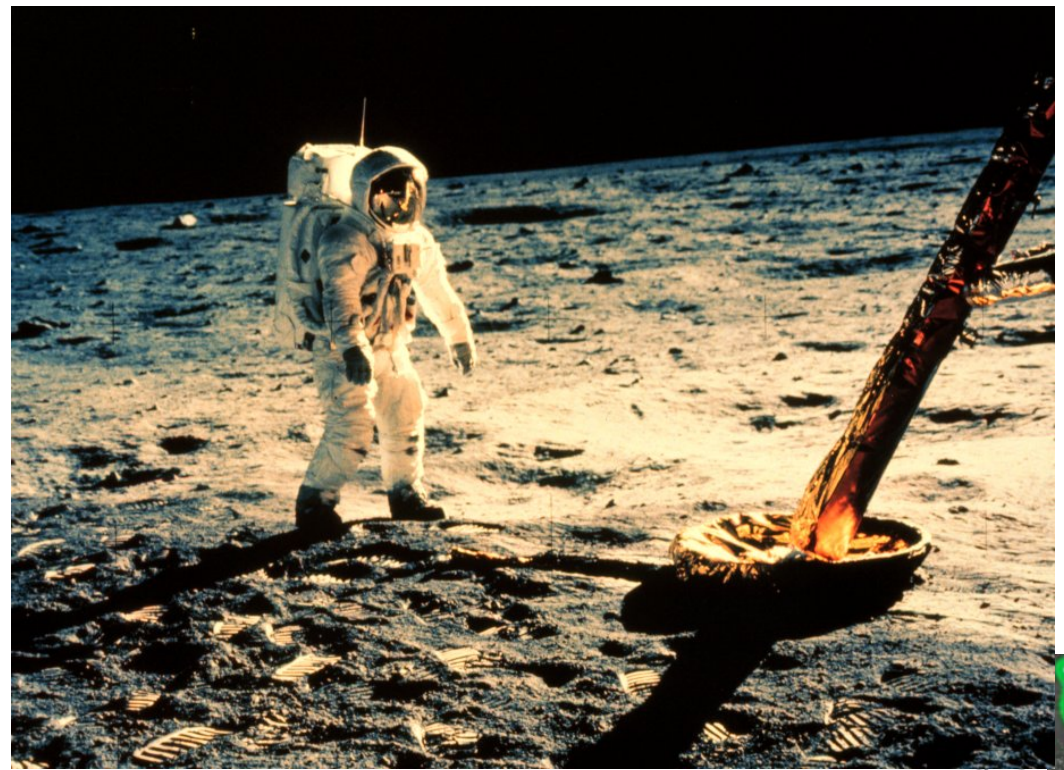


Quale chirurgia ?

- Artroscopia
- Artrodesi
- Artroprotesi
- Allograft
- Biotecnologie

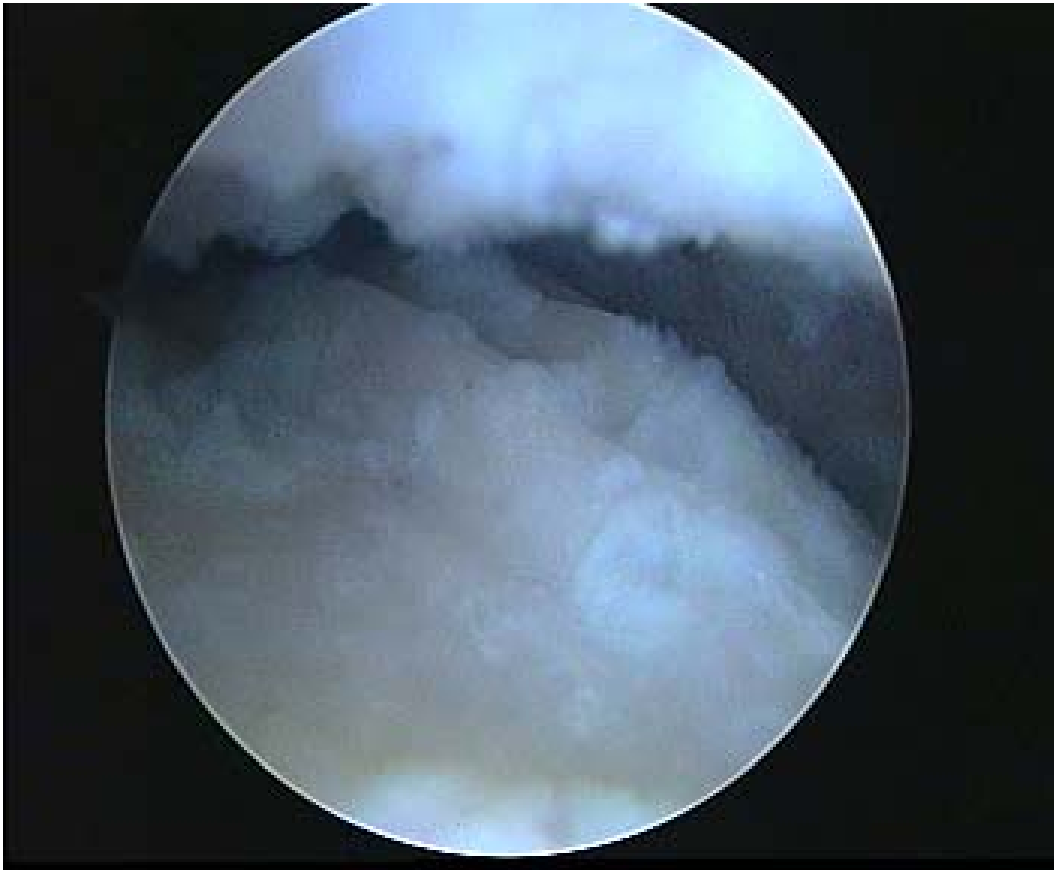
Quale chirurgia ?

- Allograft
- Biotecnologie



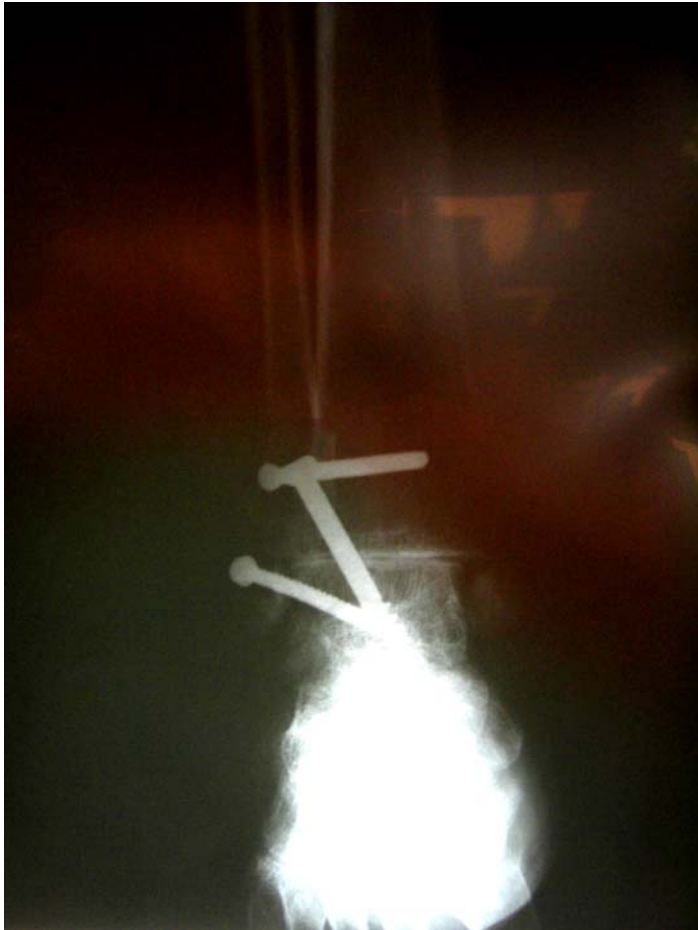
Quale chirurgia ?

- Artroscopia



Quale chirurgia ?

- Artrodesi



Artrodesi Caviglia

Buon compenso
funzionale



Artrodesi Caviglia

**Buon compenso
funzionale
solo
apparente**



Artrodesi Caviglia

Danno sovrasgmentario

• Ginocchio



Artrodesi Caviglia

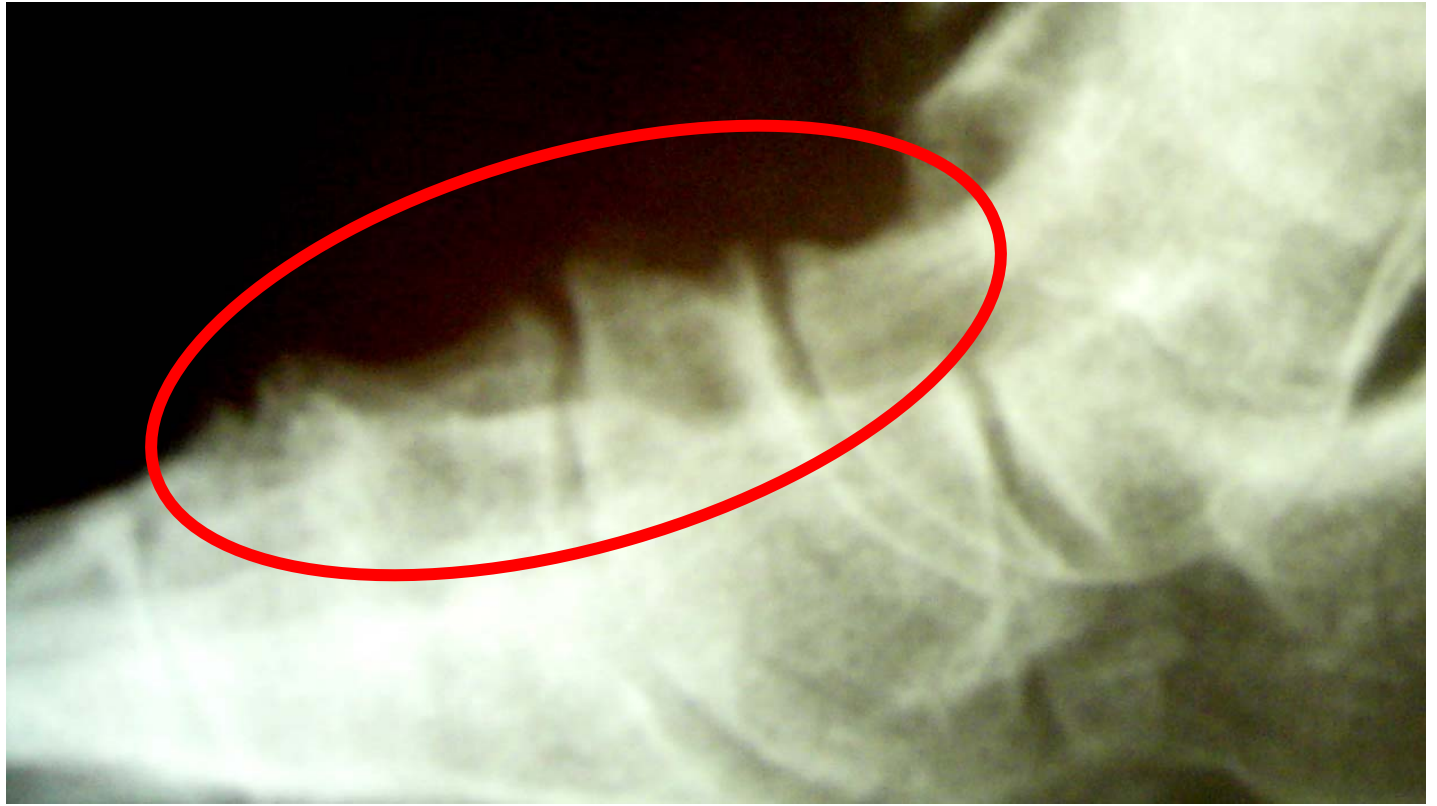
Danno sovrasgmentario

- Anca



Artrodesi Caviglia

Danno mediotarsica





Editorial

Why Ankle Replacement?

Charles Salzman

Ankle fusion is not a panacea, especially for the patient with adjacent hind foot arthritis or previous fusion. If we look critically at the world's literature on ankle fusion with current techniques, we find a reported first-time fusion rate of approximately 90%.^{1,2,3,7} Of patients with successful fusion, 90% report substantial, but usually not complete, pain relief. If we factor these together, we find that approximately 80% of first-time patients with ankle fusion initially will be satisfied with their results. As a surgeon who has performed several hundred ankle fusion operations, an 80% success rate means that 20% of my patients are not initially satisfied. Some need additional surgeries, but for some there is no obvious surgical solution.

20% di cattivi risultati in Pz. sottoposti ad artrodesi di tibio-tarsica



Artroprotesi Caviglia



La protesi di caviglia fa parte delle procedure accettate in ortopedia.

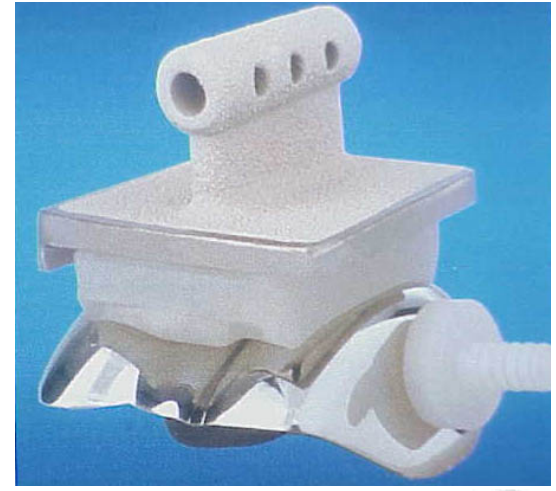
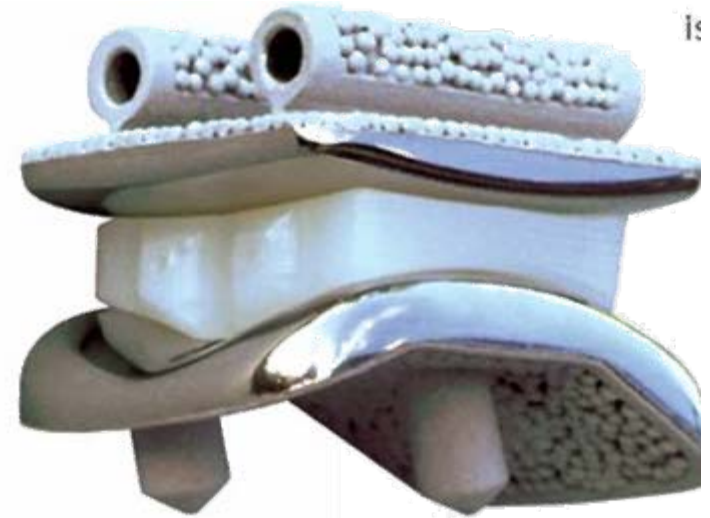
Nel corso degli ultimi dieci anni il moltiplicarsi dei casi trattati e la loro valutazione post operatoria hanno permesso di mettere in luce il perché di molti fallimenti.

E conseguentemente si sono sviluppati nuovi disegni per una funzione migliore e una maggiore durata dell'impianto.



Artroprotesi Caviglia

- 4° generazione
- non cementate
- menisco mobile



Indicazioni

- Artrosi primaria
- Artrosi secondaria
- Artrite reumatoide

Artrosi primaria



Artrosi secondaria



Artrite reumatoide



Controindicazioni

- Osteomielite
- Osteonecrosi
- Osteomalacia

ASSOLUTE

Controindicazioni

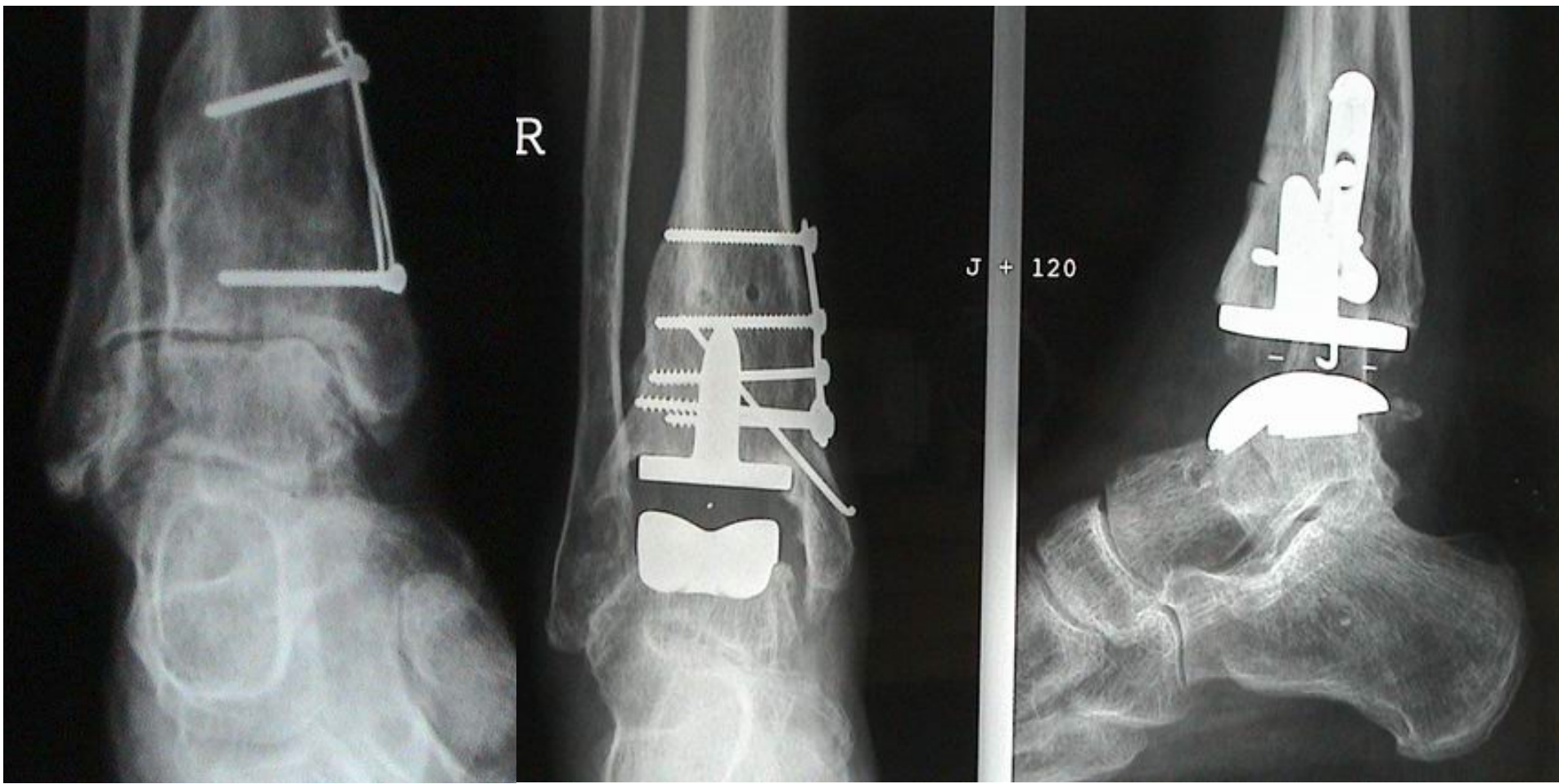
- Calli ossei viziosi
- Difetti d'asse
- Instabilità

Indicazione
RELATIVE
ad eseguire
tempi
chirurgici
accessori

Tempi chirurgici accessori



Tempi chirurgici accessori



Tempi chirurgici accessori



Tempi chirurgici accessori

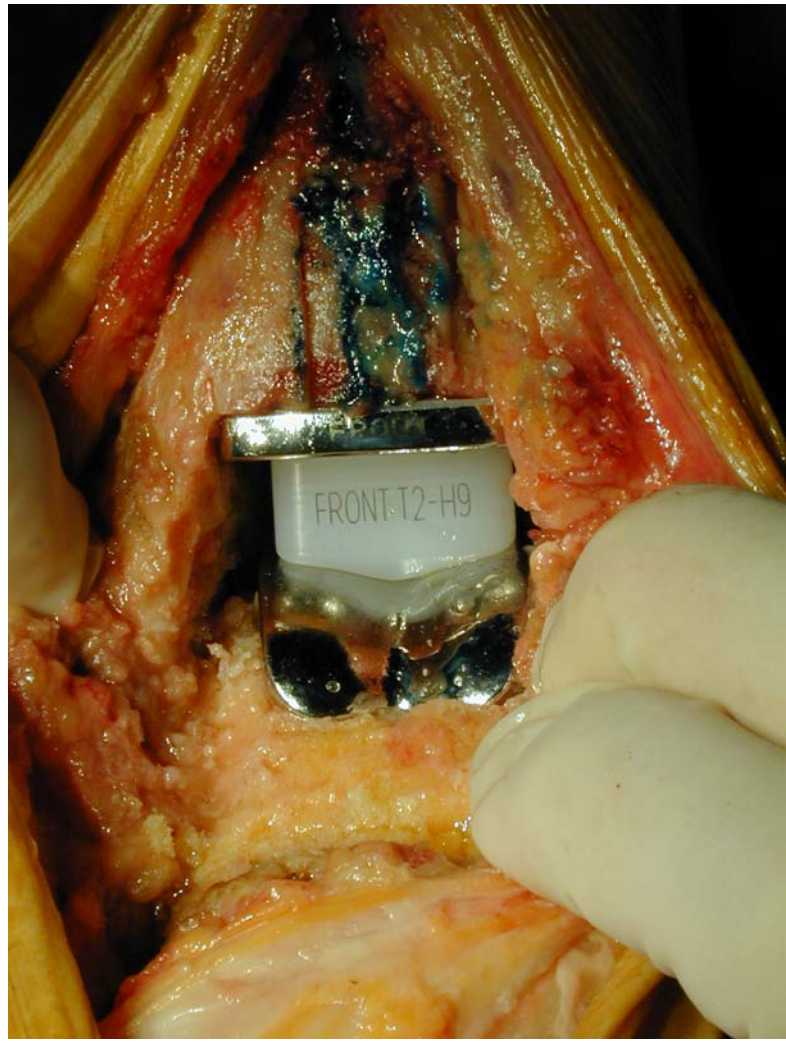
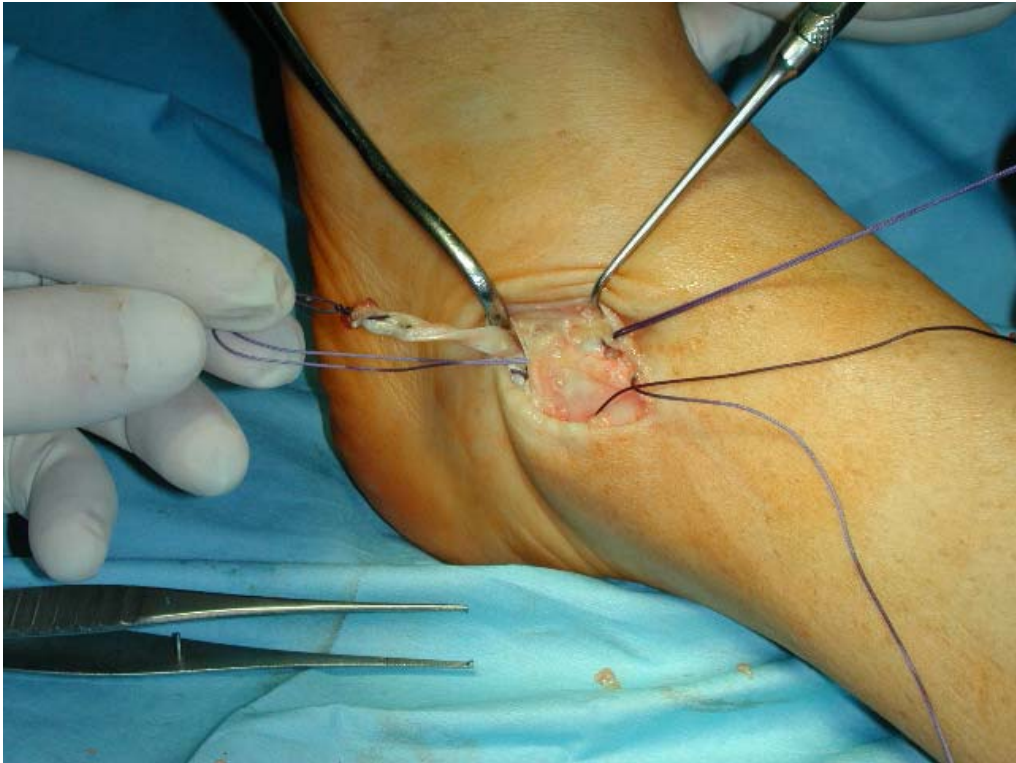


Tempi chirurgici accessori



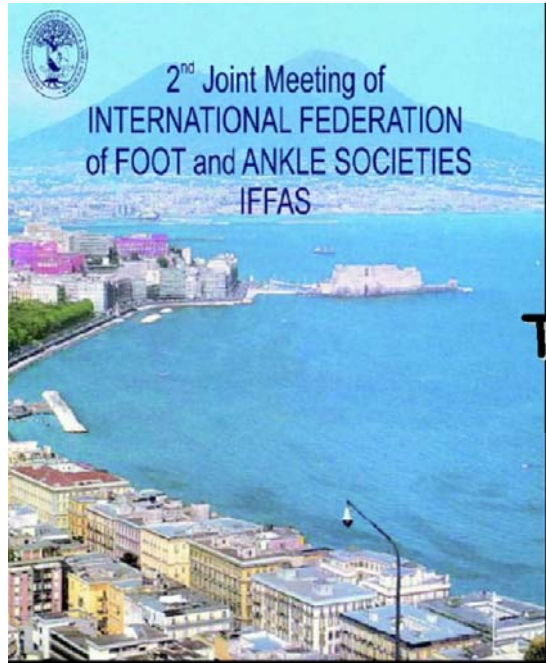
Tempi chirurgici accessori

Instabilità esterna



Analisi dei risultati

- Casistica limitata
- Follow-up breve



Fixation and bone growth in tibial component of the AES Total Ankle prosthesis

*M. Guelfi,
C. Ameri*, S. Bosio°,
F. Grilli, F. Priano*





For Analysis of Bone Remodeling

Two Methods

- Traditional X-ray
- DEXA

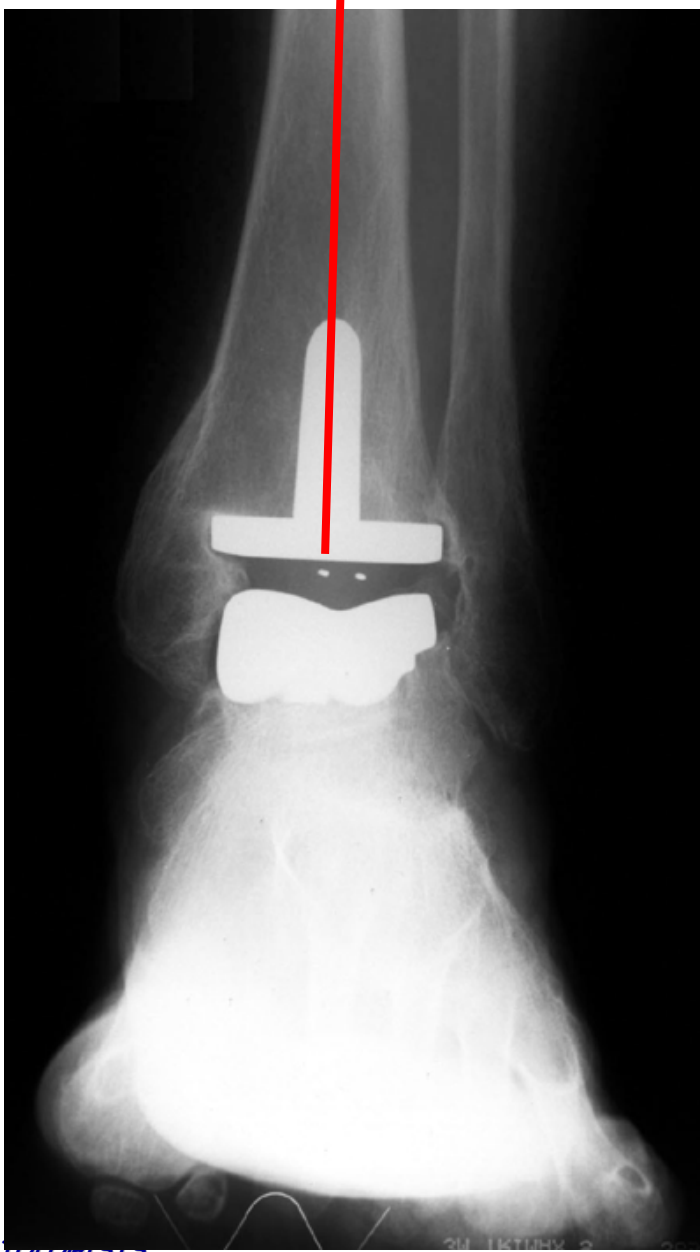




X-Ray:

alignment
fit
no lucency
no loosening

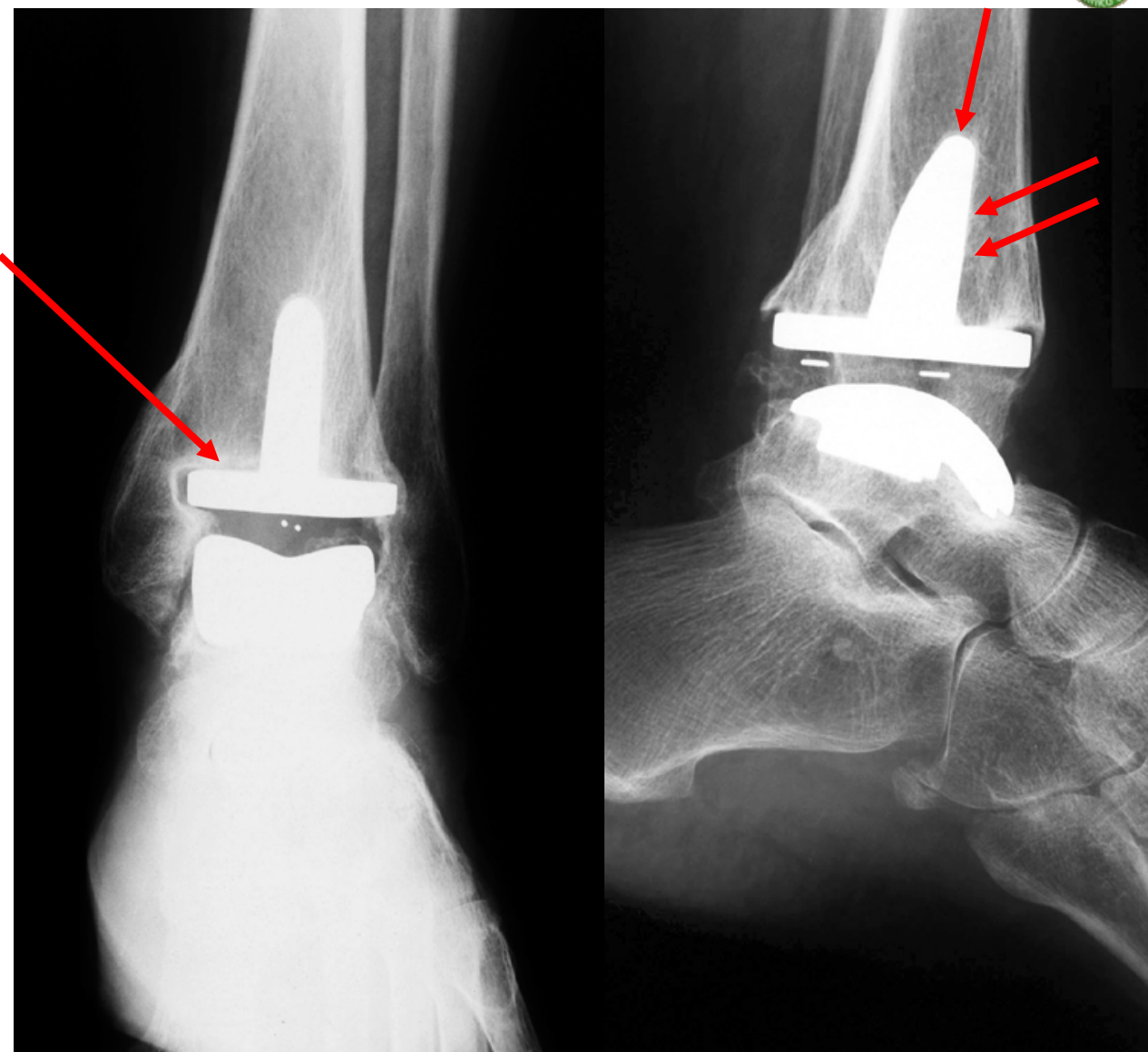
F. Up 8 mm.



X-Ray:

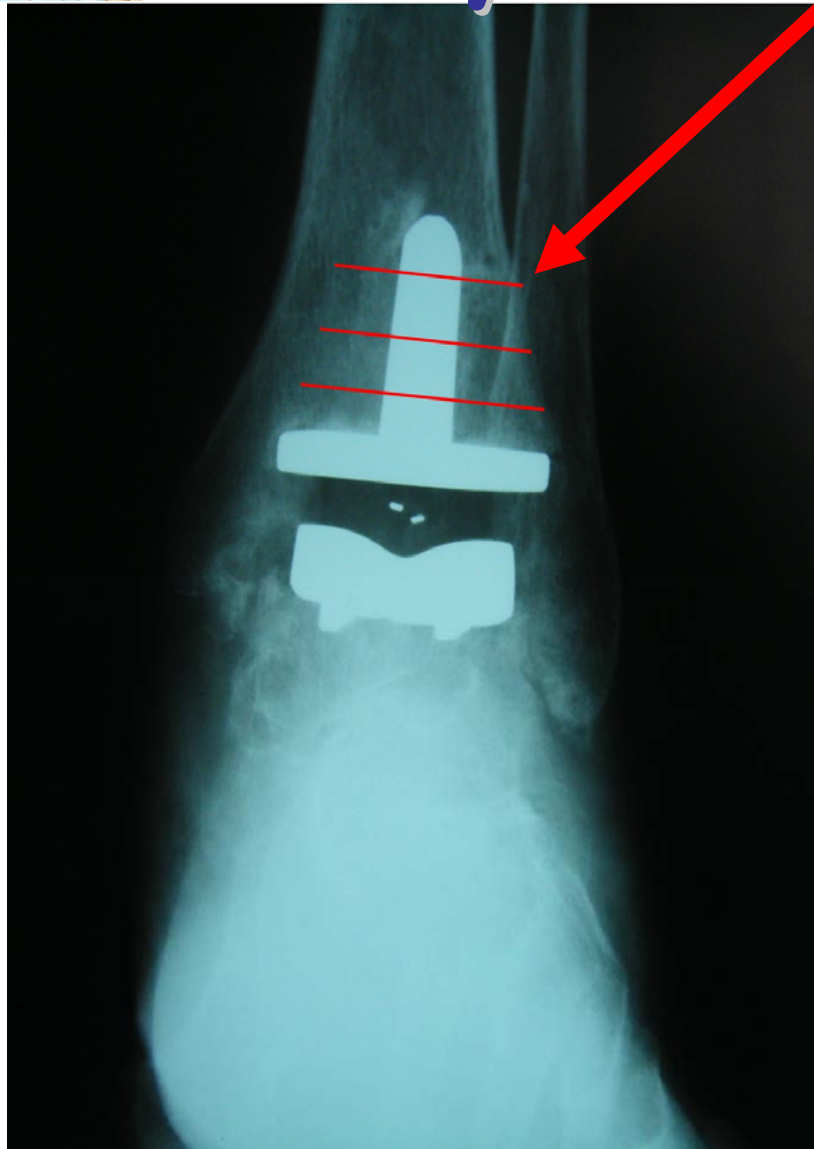
alignment
lucency < 1mm
Bone growth
no loosening

F. Up 30 mm.





X-Ray:

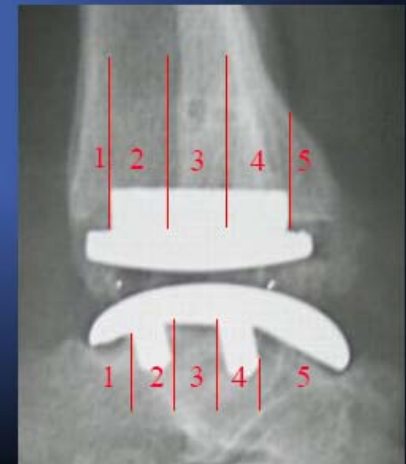


GRUEN areas marked in AES prosthesis to assess evolutive X-ray lucency or loosening as reported by **Giannini** for the **BOX**



Valutazione radiografica a 3, 6, 12, 18 e 24 mesi f.u.:

Rx AP e LL sotto carico (valutazione radiolucenze evolutive grado 1: < 1 mm, grado 2: 1 < x < 2 mm, grado 3: > 2 mm)



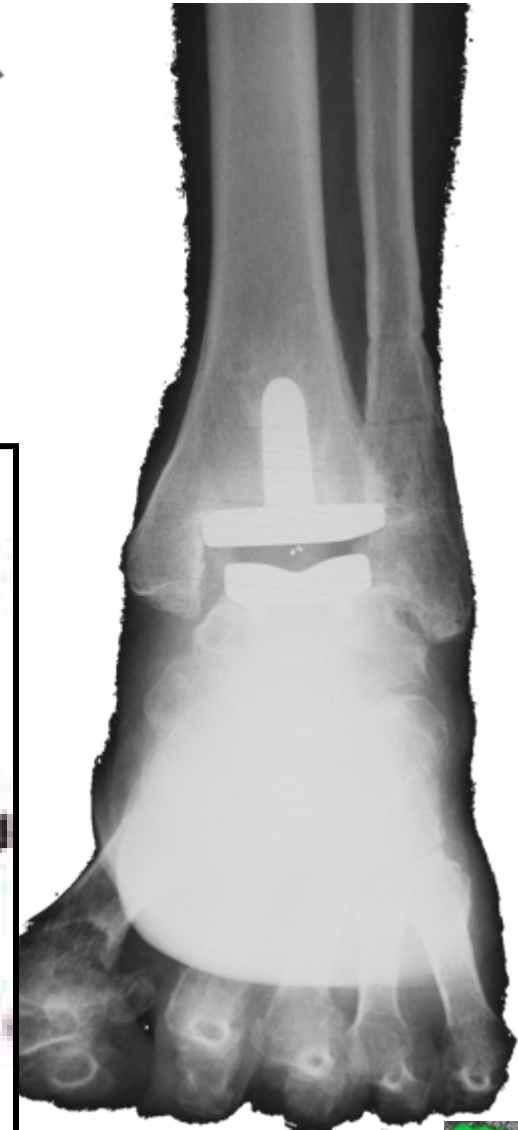
For Analysis of Bone Remodeling

Two Methods



□ Traditional X-ray

□ DEXA





DEXA dual energy X-ray absorptiometry



- DEXA is the most precise and significant method for Bone Mineral Density study.
- Gruen areas are significant like BIOMECHANICAL VALUE: DEXA shows not only the quantity of bone, but the biomechanical behavior.
- DEXA cannot replace traditional X-Ray methods to analysis of prosthesis failure.
- Only a LONGITUDINAL DEXA analysis has the requisites to be considered reliable.

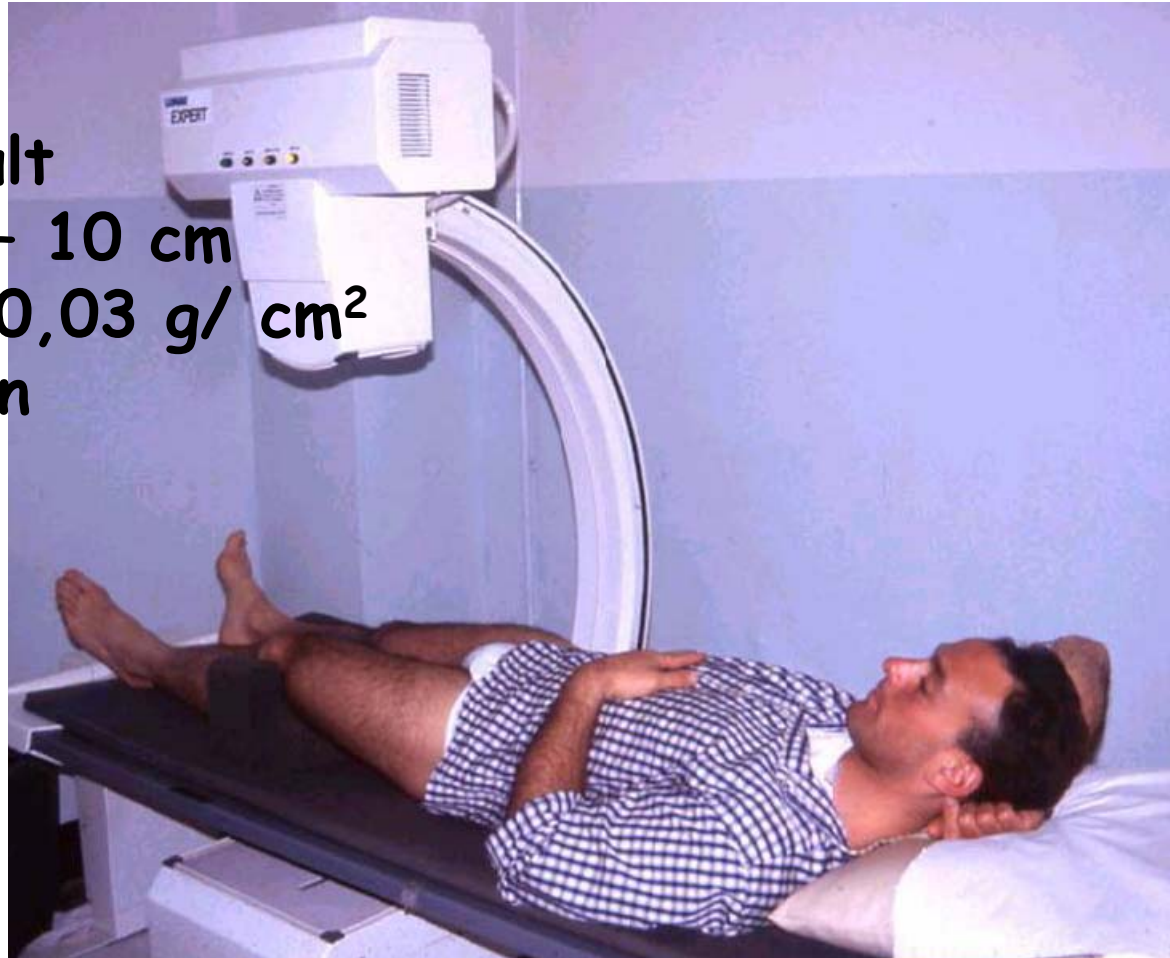


DEXA technical characteristics



Expert - XL (Lunar Inc.)

- Software 1,72
- Rotation 0° default
- Implant length 8 - 10 cm
- Precision : 0,01 - 0,03 g/ cm²
- Excellent resolution



DEXA analysis timing

1° Since 4° week p. o.
 2° 4° mo
 3° 8° mo
 4° 12° mo
 5° 36° mo

Name: PERILLO, ANTONIETTA Sex: Female Height: 152.0 cm
 Patient ID: Ethnicity: White Weight: 77.0 kg
 OB: 19 September 1938 Menopause Age: 50 Age: 66

Referring Physician:

Image not for diagnostic use
k = 1.185, d0 = 71.8
199 x 81

Scan Information:

Scan Date: 05 May 2005 ID: U05050517
 Scan Type: a L.Prosth.Hip
 Analysis: 05 May 2005 15:41 Version 11.2.1:3
 Left Prosthetic Hip *ANKLR*
 Operator:
 Model: QDR 4500A (S/N 45307)
 Comment:

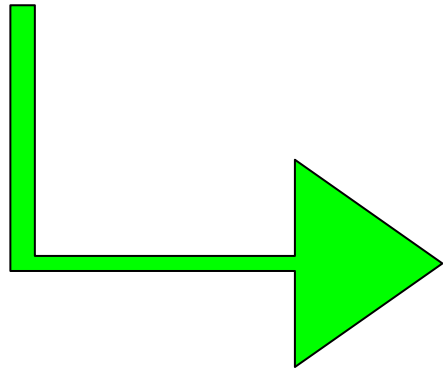
DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)
GLOBAL	21.93	15.52	0.708

ACF = 1.025, BCF = 1.011

CASES 23

The record of cases is
Consecutive and Homogeneous



Same implant
Same surgical approach
Same post-operative protocol

DEXA scan must be performed lateral - front view



Name: MACRI, VINCENZO
Patient ID:
DOB: 17 November 1944

Sex:
Ethn:

Referring Physician: PROTESI CAVIGLIA

Name: MACRI, VINCENZO Sex: Male Height: 168.0 cm
Patient ID: Ethnicity: Weight: 91.0 kg
DOB: 17 November 1944 Age: 60

Referring Physician: PROTESI CAVIGLIA



Image not for diagnostic use
k = 1.183, d0 = 55.7
279 x 133

Scan Information:

Scan Date: 21 April 2005 ID: U04210510
Scan Type: a Rat WB
Analysis: 21 April 2005 15:47 Version 11.2.1:3
Rat Whole Body
Operator:
Model: QDR 4500A (S/N 45307)
Comment:

DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)
GLOBAL	127.5535	124.4889	0.9760
GLOBAL			

RBAR101

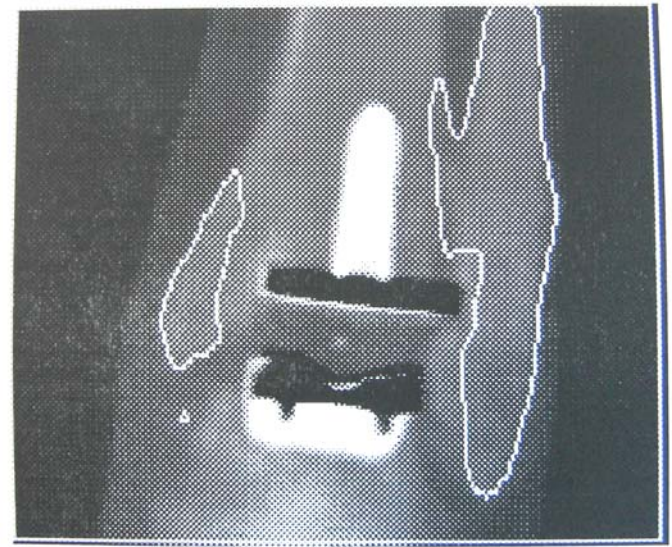


Image not for diagnostic use
k = 1.189, d0 = 74.2
199 x 84

12 mm. post-op.



DEXA scan must be performed in operated & non-operated side

Name: MACRI, VINCENZO Sex: Male Height: 168.0 cm
 Patient ID: Ethnicity: Weight: 91.0 kg
 DOB: 17 November 1944 Age: 60

Referring Physician: PROTESI CAVIGLIA

Scan Information:
 Scan Date: 21 April 2005 ID: U0421050Z
 Scan Type: a L.Prosth.Hip
 Analysis: 21 April 2005 15:51 Version 11.2.1:3
 Left Prosthetic Hip

Operator:
 Model: QDR 4500A (S/N 45307)
 Comment:


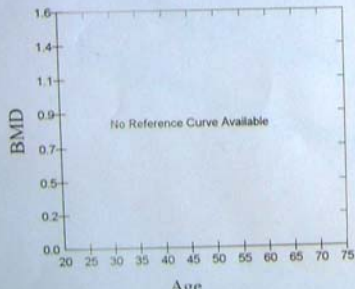


Image not for diagnostic use
 k = 1.181, d0 = 70.3
 199 x 180

DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)
GLOBAL	102.16	62.97	0.616
R1	9.69	7.52	0.776
R2	11.07	9.42	0.851
NETAVG	20.77	16.94	0.816

ACF = 1.025, BCF = 1.011



Physician's Comment:

12 mm. post-op

Name: MACRI, VINCENZO Sex: Male Height: 168.0 cm
 Patient ID: Ethnicity: Weight: 91.0 kg
 DOB: 17 November 1944 Age: 60

Referring Physician: PROTESI CAVIGLIA

Scan Information:
 Scan Date: 21 April 2005 ID: U04210511
 Scan Type: a Rat WB
 Analysis: 21 April 2005 15:49 Version 11.2.1:3
 Rat Whole Body

Operator:
 Model: QDR 4500A (S/N 45307)
 Comment:


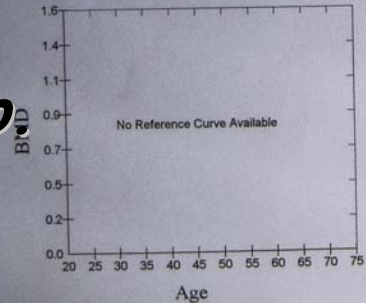


Image not for diagnostic use
 k = 1.340, d0 = 45.3
 279 x 120

DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)
GLOBAL	118.3377	63.9982	0.5408
R1	12.5499	11.5957	0.9240
R2	11.9208	12.0694	1.0125
NETAVG	24.4706	23.6651	0.9671

GLOBAL
 R1
 R2
 NETAVG



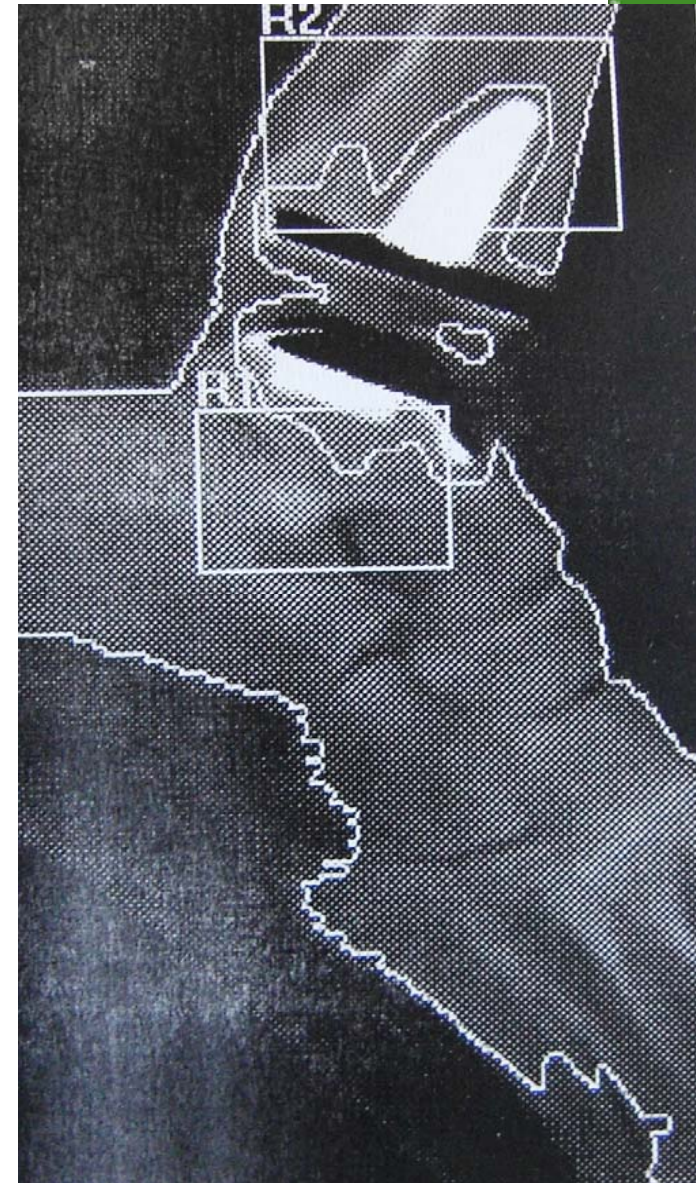
Physician's Comment:

West and Gruen
reported that
“there is **always**
a decrease in BMD
in the operated hip”

(West, 87 - Gruen, 87)



In our series
the average of
BMD decrease
at 12 months F.U.
in operated ankle
is 14%





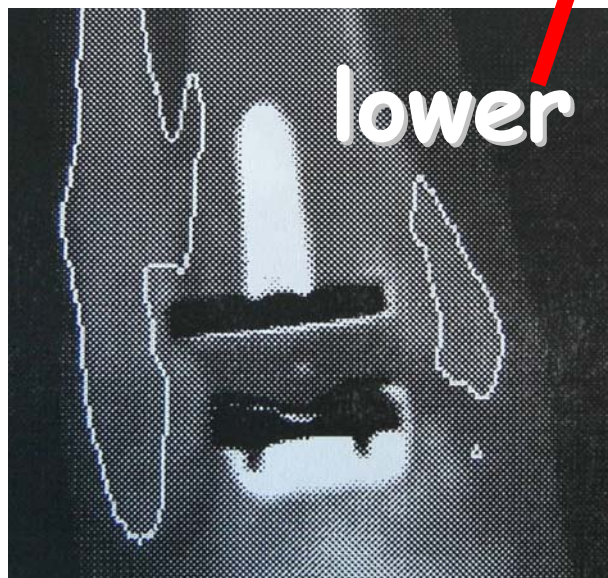
PERIPROSTHETIC BMD values in TAR

DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)
GLOBAL	102.16	62.97	0.616
R1	9.69	7.52	0.776
R2	11.07	9.42	0.851
NETAVG	20.77	16.94	0.816

DXA Results Summary:

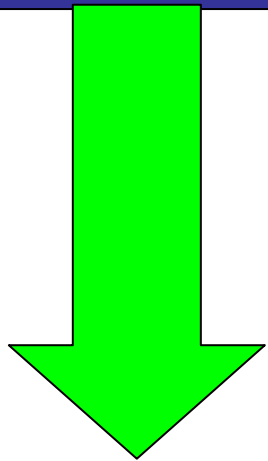
Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)
GLOBAL	118.3377	63.9982	0.5408
R1	12.5499	11.5957	0.9240
R2	11.9208	12.0694	1.0125
NETAVG	24.4706	23.6651	0.9671



AUTHOR	FOLLOW UP	BMD decrease
KIRATLI et al.1992 HIP	1 y	25 - 32 %
HUGHES et al.1995 HIP	2 - 4 y	17 - 34 % 7 -15 %
NISHI et al.1997 HIP	2 y	10 - 20 %
PALERMO-PIPINO 1999 HIP	3 y	3 %
GUELFI et al. 2005 ANKLE	1 y	14 %

The comparison between ankle and hip data shows that time influences BMD decrease infact in the series with long follow up there is better BMD

DEXA



PREDICTIVE of ABNORMAL RESPONSE
to SURGERY and PREMONITORY
of LATER PROBLEMS

Insuccessi

Mobilizzazione





AZIENDA OSPEDALIERA UNIVERSITARIA
"SAN MARTINO" - Genova



OSPEDIALE GRADENIGO - Torino



SOCIETÀ ITALIANA DI RIPROTESIZZAZIONE

4^o CONGRESSO NAZIONALE

Genova, 23 – 24 settembre 2005

I Risultati dei Reimpianti Protesici

17,30 TAVOLA ROTONDA: Riprotesizzazione della caviglia

Conduttore: S. Giannini (Bologna)

Intervengono: J. G. Asencio (Nimes, Francia)

B. Hintermann (Basilea, Svizzera)

H. Kofoed (Copenaghen, Danimarca)

F. Malerba (Milano)

Presidente Onorario

Francesco Pipino

Giovanni Annarufone
Francesco Franchin

Corso per Infermieri Professionali e Strumentisti
di Sala Operatoria Ortopedica

Genova, 23 - 24 settembre 2005

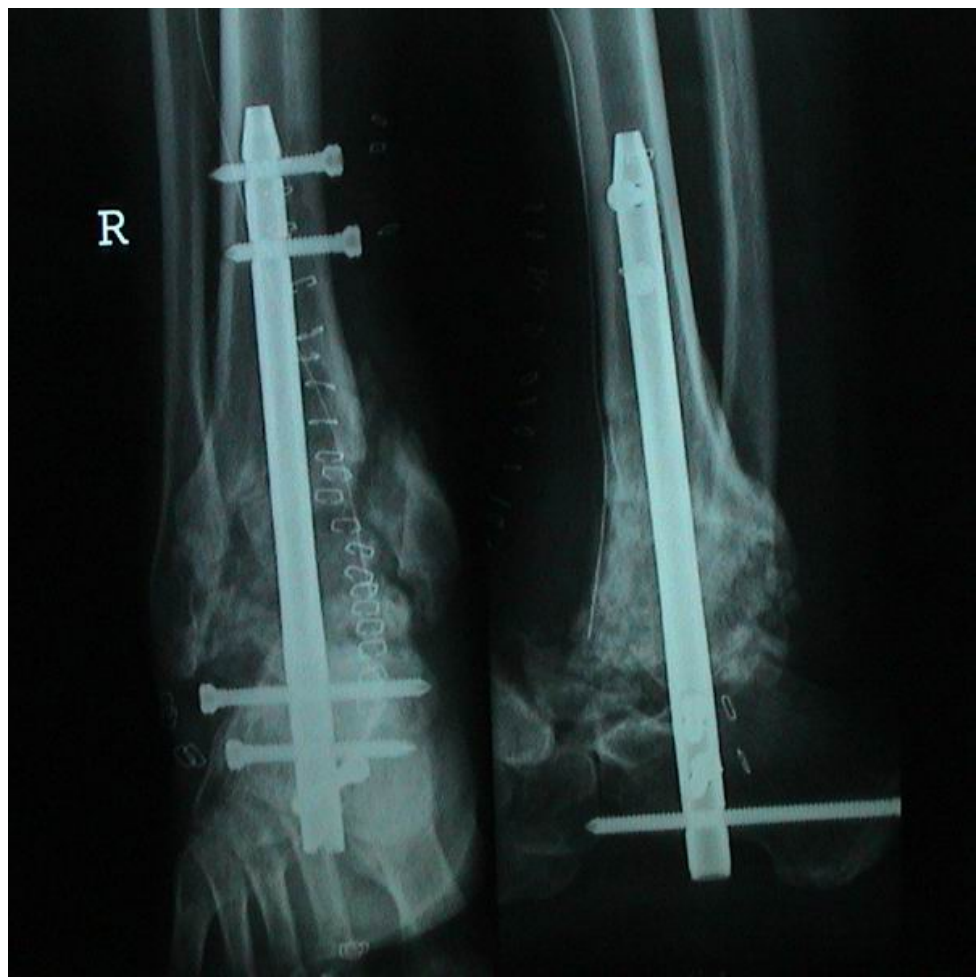
Programma

GOST

GENOA ORTHOPAEDIC SURGEONS & TRAUMATOLOGISTS



Artrodesi dopo mobilizzazione





Diagnosi precoce di mobilizzazione

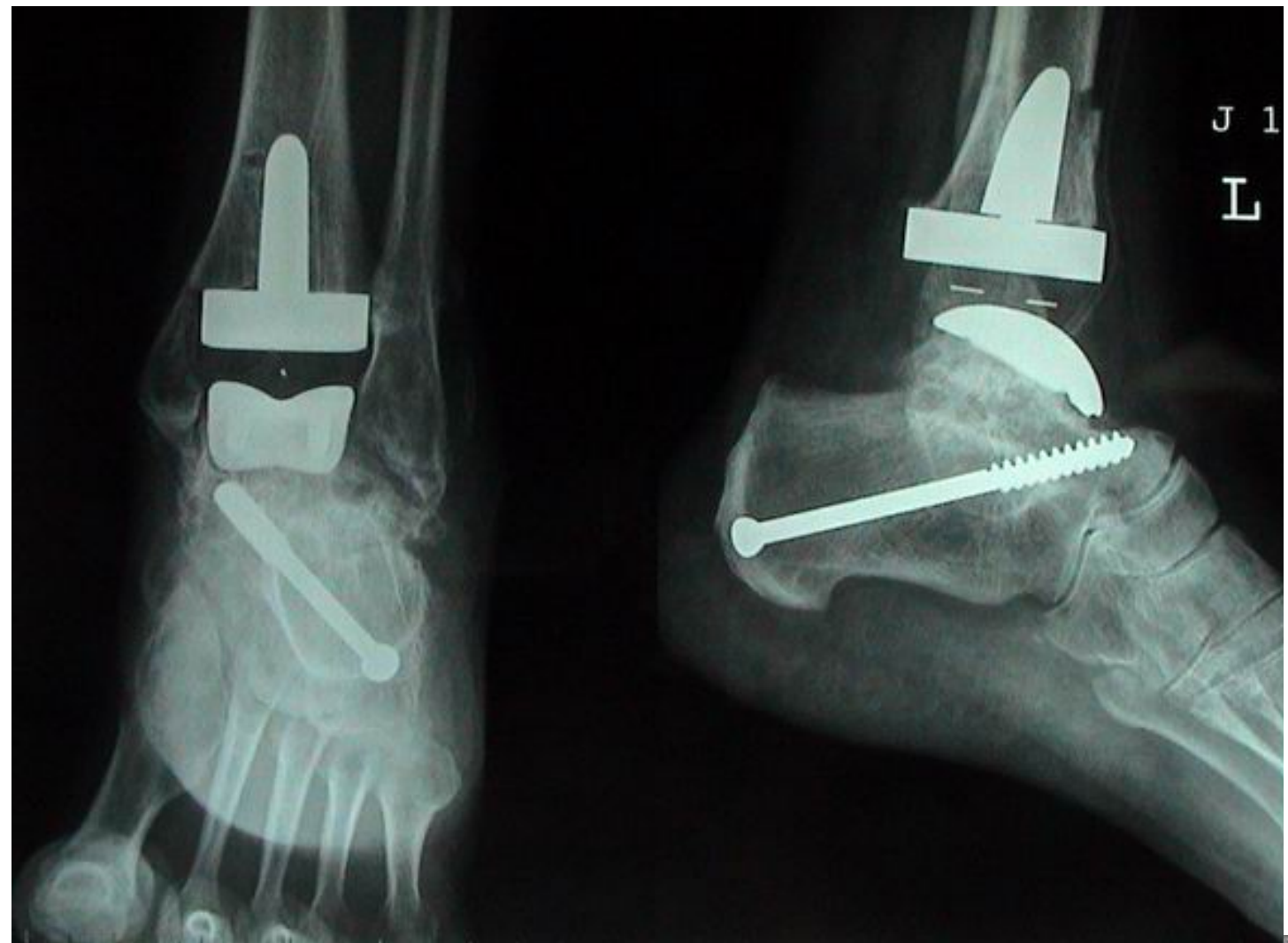
- Clinica
- Radiografica
- Dexa

**Conservazione del
bone stock**



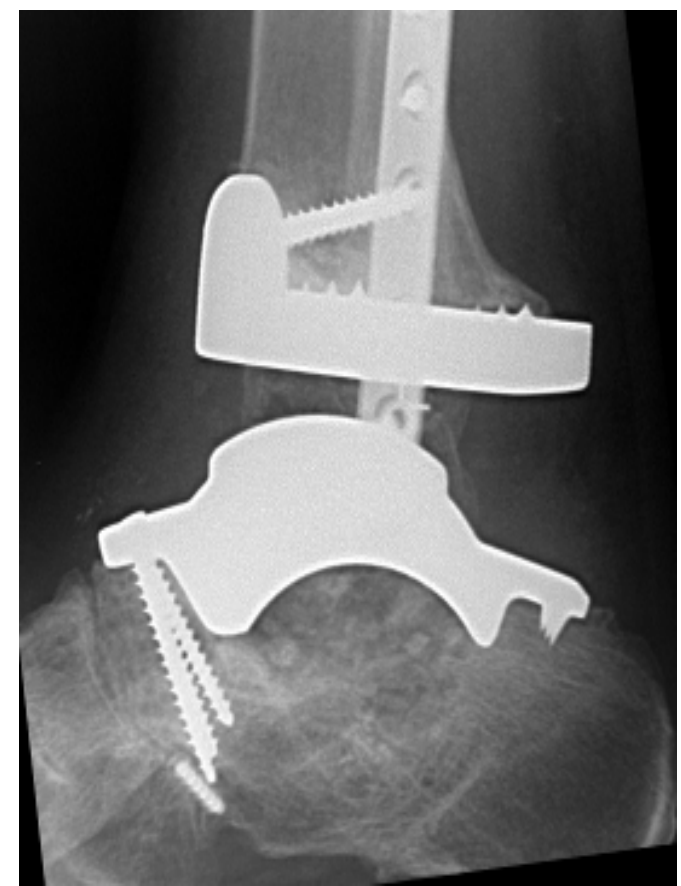
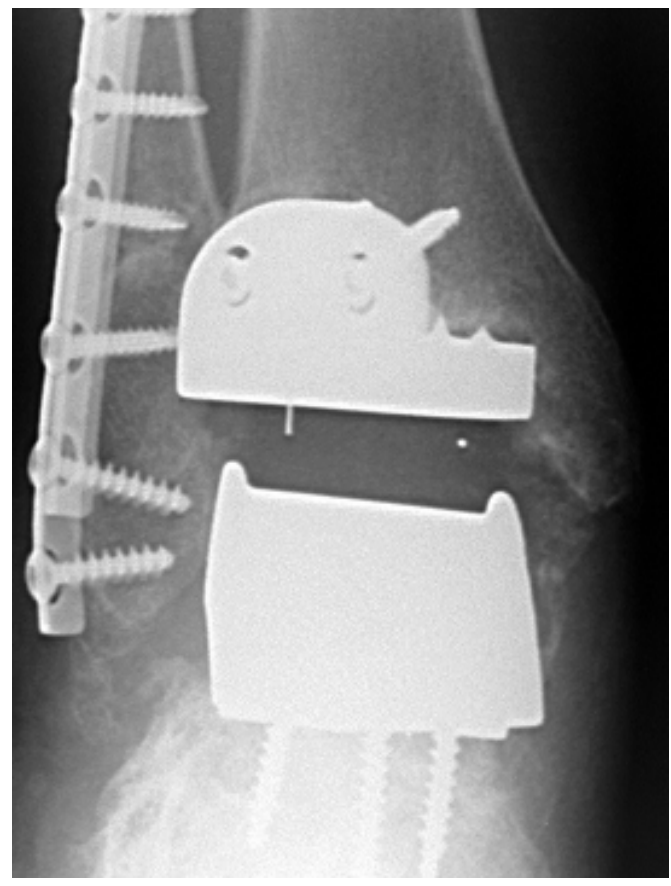
Protesi dopo mobilizzazione

Protesi
dedicate
da revisione



Protesi dopo mobilizzazione

Custom made



Grazie per l'attenzione





2 GENOVA FOOT 6



XXIX Congresso Nazionale

S.I.C.P.

Società Italiana Caviglia Piede



Genova, 11-13 maggio 2006

Presidente: Marco Guelfi



2 **GENOVA**
F **FOOT** **6**