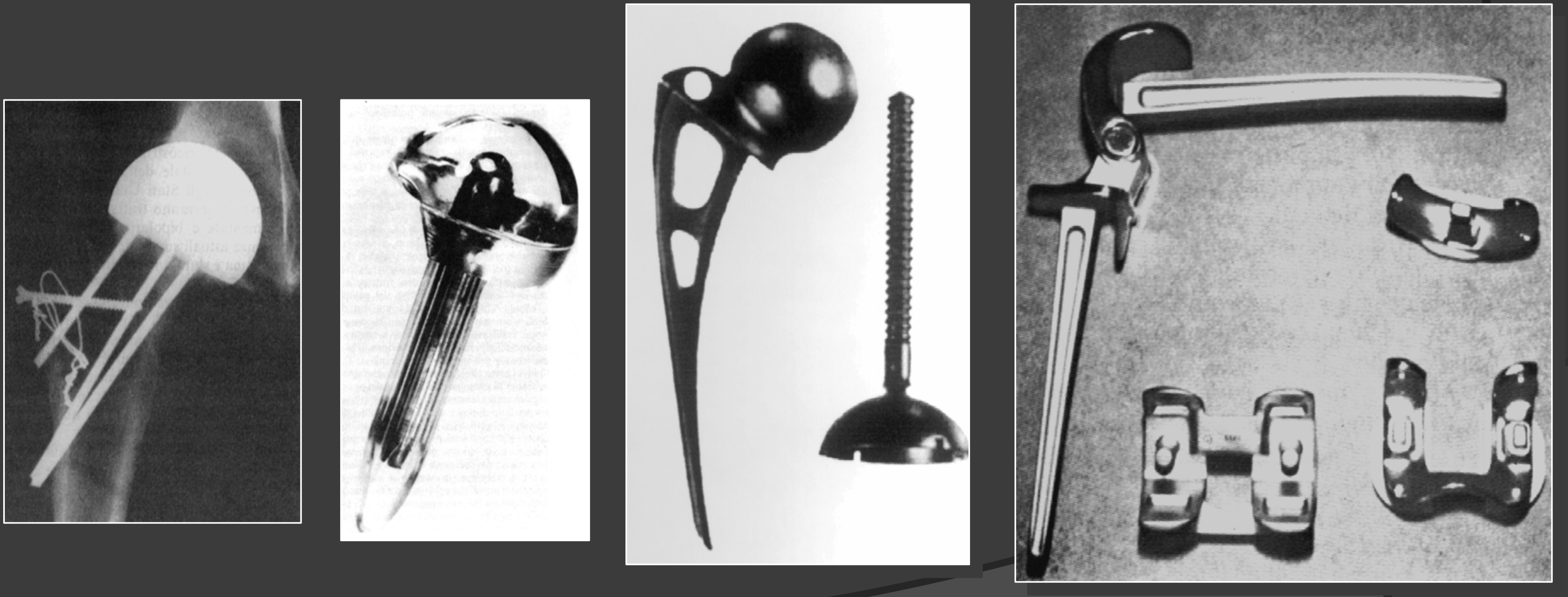
La gestione infermieristica del paziente nella protesizzazione dell’anca e del ginocchio

Dott A. Zaino
O.E.I. – Genova (P.O. Voltri)

PROTESI D'ANCA E DI GINOCCHIO

oltre 60 anni di esperienza



PROTESI D'ANCA

1948: Protesi cefalica in resina acrilica (JUDET)

1952: Endoprotesi metallica non cementata
(THOMPSON - MOORE)

1958: Artroprotesi totale M/M (McKEE - FARRAR)

1961: Low Friction Arthroplasty (J. CHARNLEY)

1975: Artroprotesi totale non cementata (LORD)

1982: Artroprotesi a conservazione del collo femorale (PIPINO)

1961

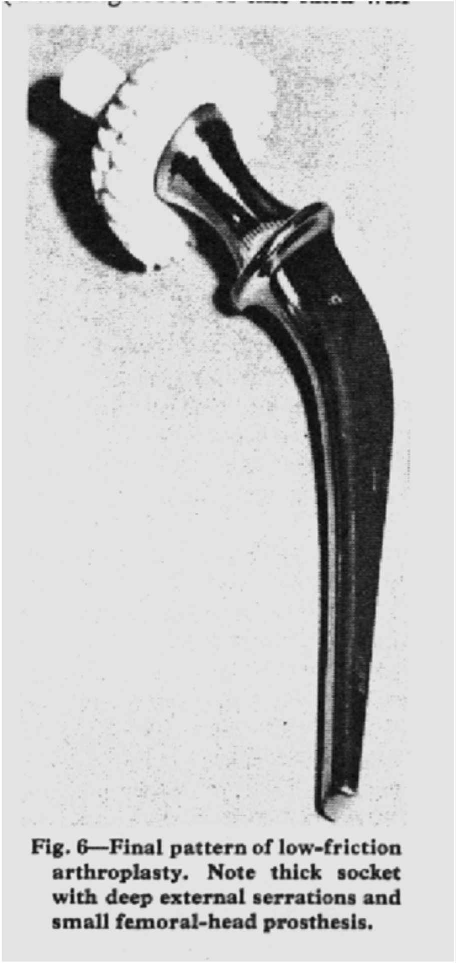
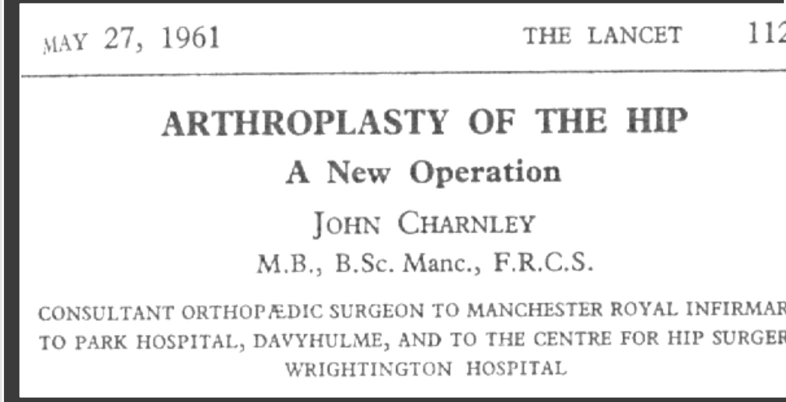


Fig. 6—Final pattern of low-friction arthroplasty. Note thick socket with deep external serrations and small femoral-head prosthesis.

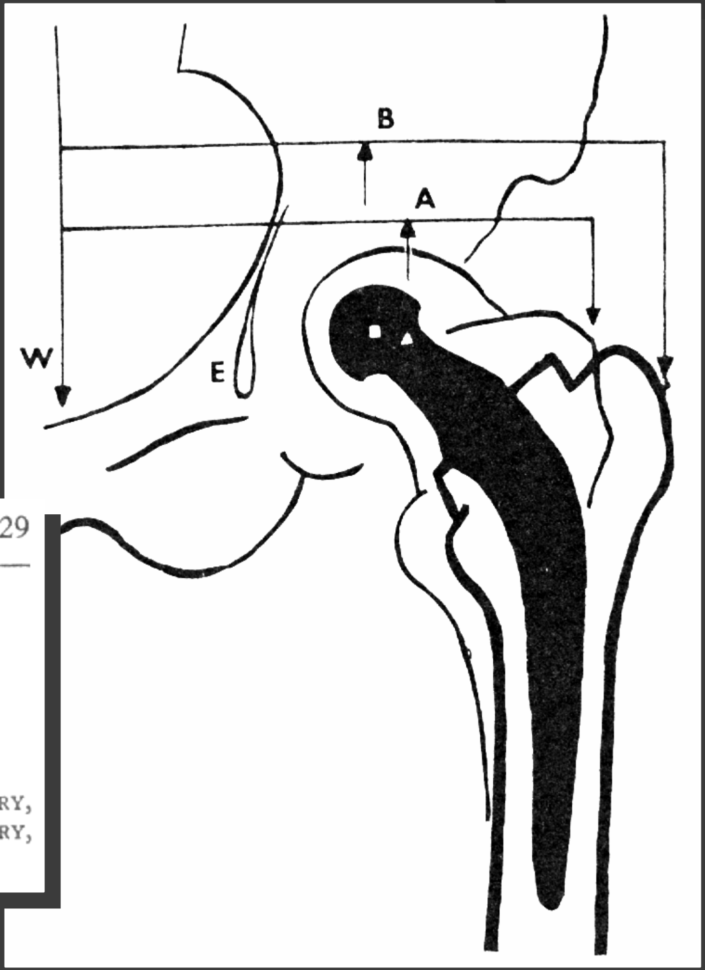


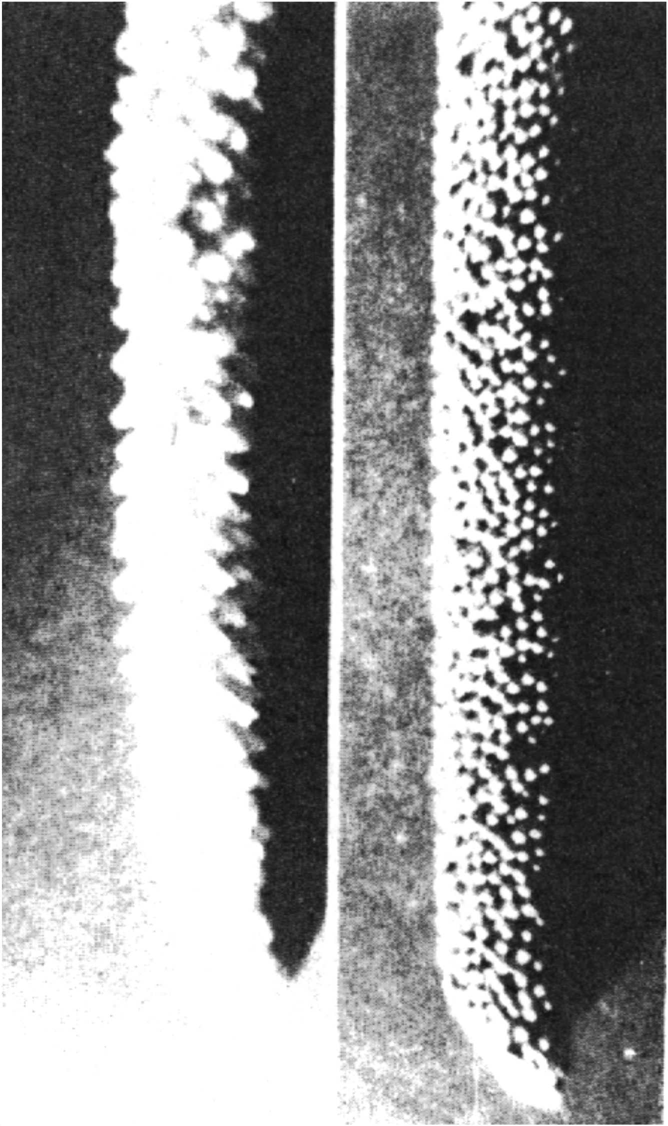
MAY 27, 1961 THE LANCET 1129

ARTHROPLASTY OF THE HIP

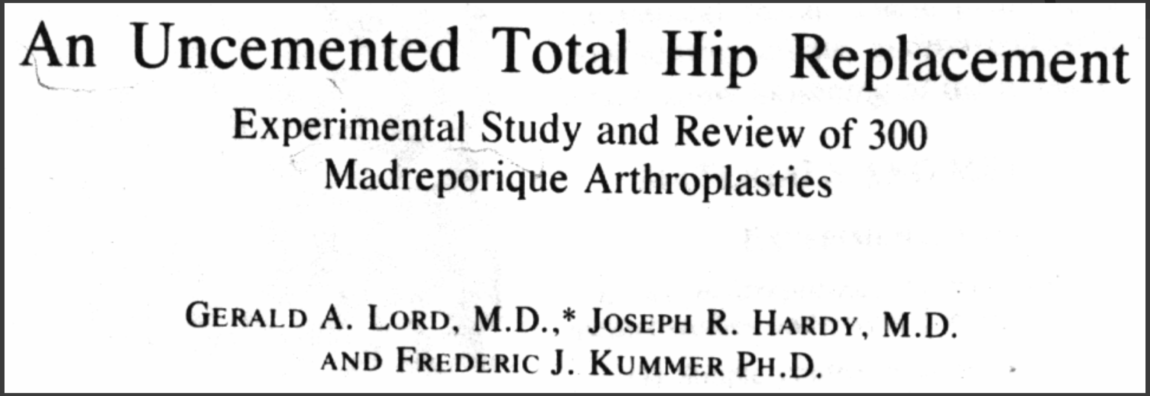
A New Operation

JOHN CHARNLEY
M.B., B.Sc. Manc., F.R.C.S.
CONSULTANT ORTHOPÆDIC SURGEON TO MANCHESTER ROYAL INFIRMARY, TO PARK HOSPITAL, DAVYHULME, AND TO THE CENTRE FOR HIP SURGERY, WRIGHTINGTON HOSPITAL





1975

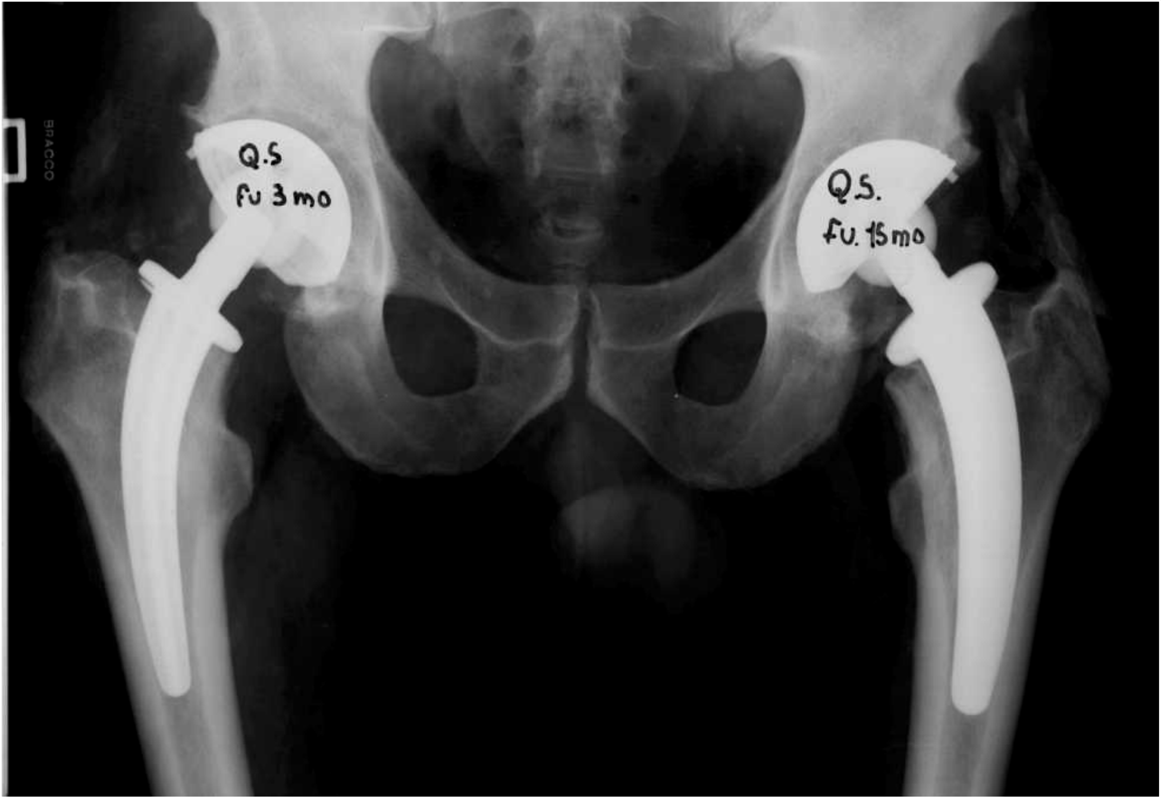


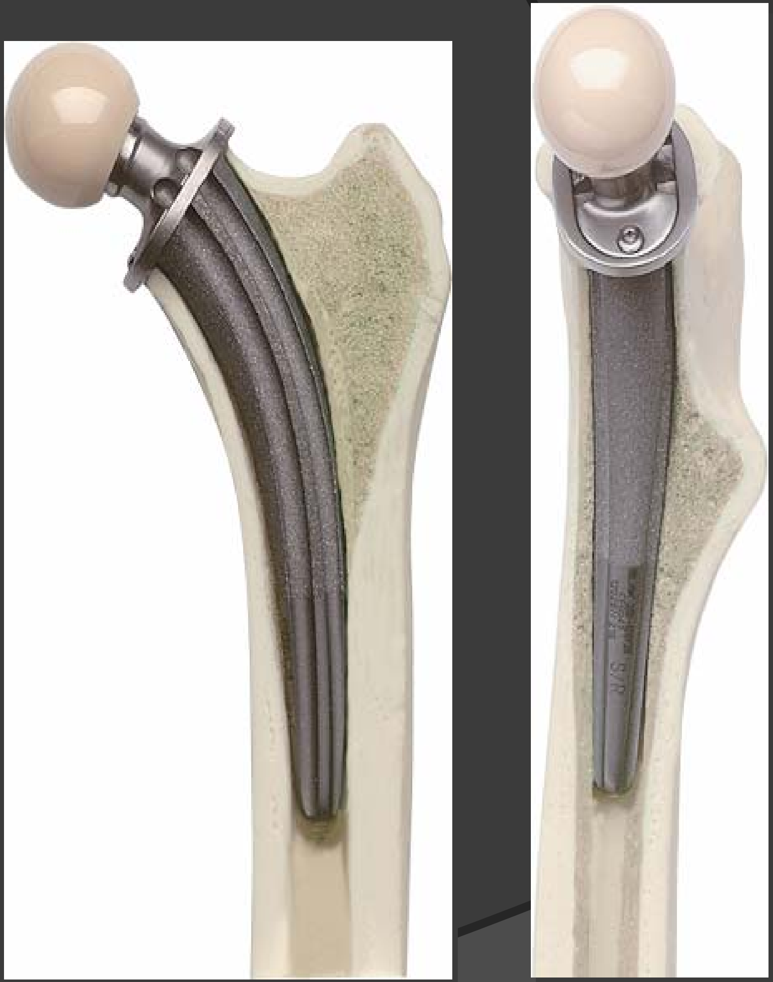
An Uncemented Total Hip Replacement

Experimental Study and Review of 300 Madreporique Arthroplasties

GERALD A. LORD, M.D.,* JOSEPH R. HARDY, M.D.
AND FREDERIC J. KUMMER PH.D.

Stelo C.F.P.


BRACCO
Q.S
fu 3mo
Q.S.
fu. 15mo



Protesi BIODINAMICA (1982) a conservazione del collo femorale e sua evoluzione (C.F.P.)

PROTESI D'ANCA E DI GINOCCHIO

1) Perché impiantare una protesi articolare ? …(WHY ?)

2) Che cos'è una protesi articolare ? …(WHAT ?)

3) Quale tipo di protesi articolare ? …(WHICH ?)

WWW.protesiarticolare.oeit

PROTESI D’ANCA E DI GINOCCHIO

1) Perché impiantare una protesi articolare ? …(WHY ?)

2) Che cos’è una protesi articolare ? …(WHAT ?)

3) Quale tipo di protesi articolare ? …(WHICH ?)

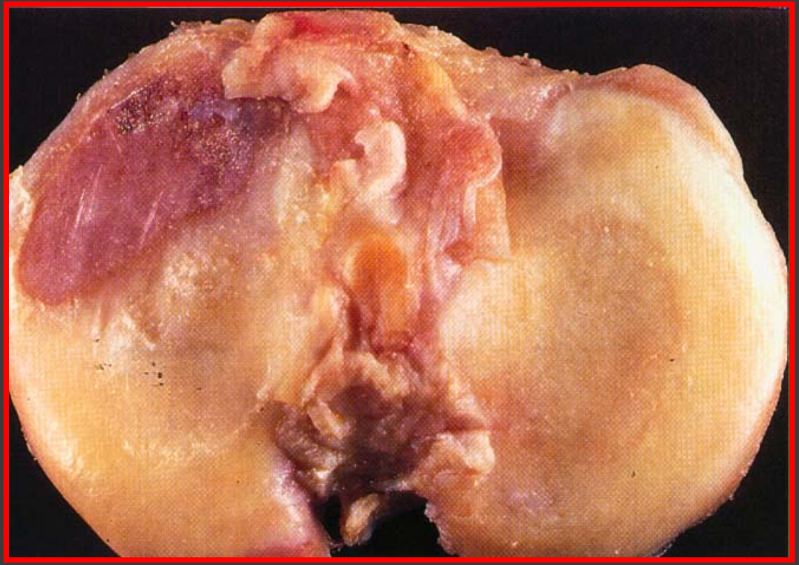
WWW.protesiarticolare.oeit

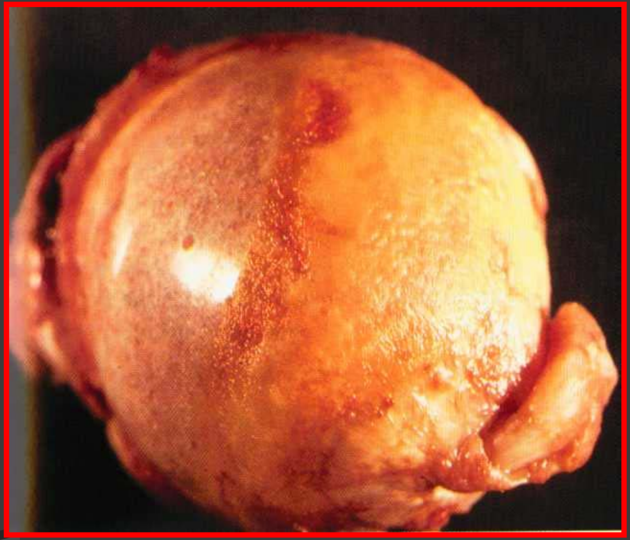
Chirurgia protesica: ANCA

Le articolazioni dell’anca e del ginocchio possono andare incontro a

***malattie infiammatorie* (artriti)**

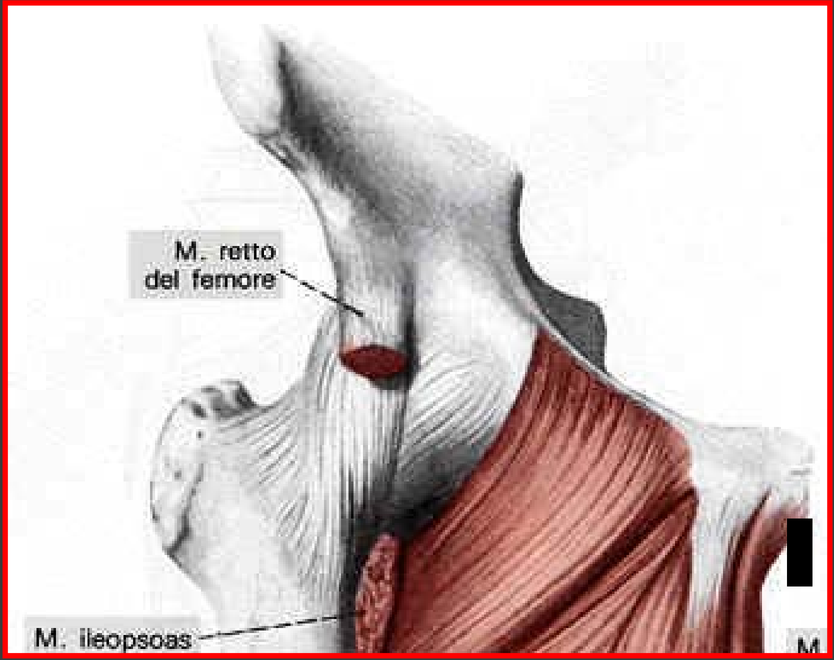
o *degenerative* (artrosi)

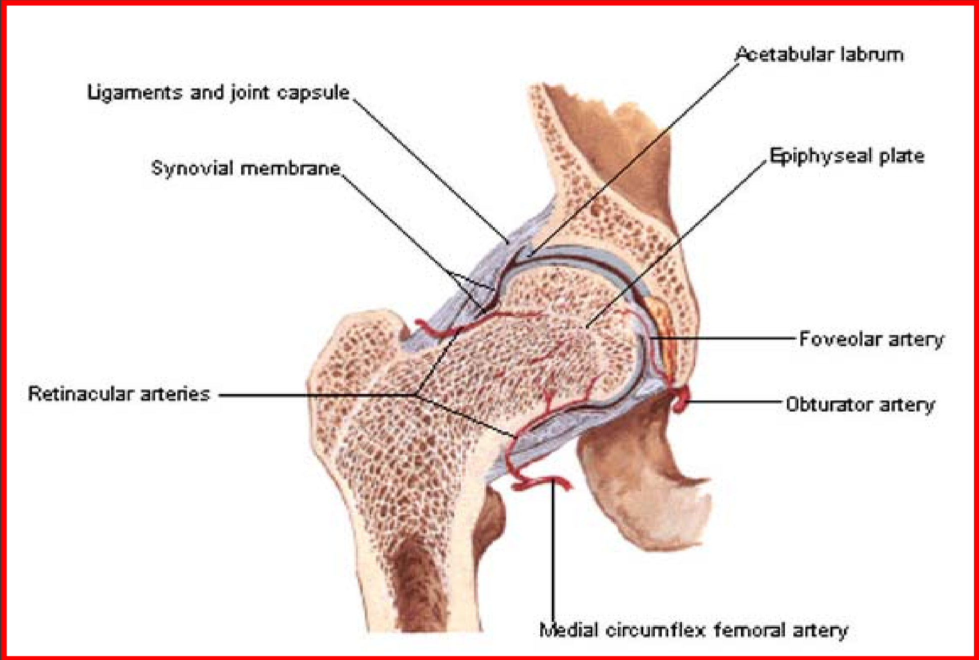




Chirurgia protesica: ANCA

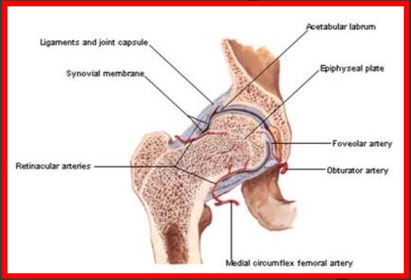
L'articolazione coxo-femorale è un'*enartrosi* (1) a *solido incastro* (2) e "*precaria bio* (3)-*meccanica* (4)" distrettuale nell'anziano


M. retto
del femore
M. ileopsoas
M
[redacted]


Acetabular labrum
Ligaments and joint capsule
Epiphyseal plate
Synovial membrane
Foveolar artery
Obturator artery
Retinacular arteries
Medial circumflex femoral artery

Chirurgia protesica: ANCA (1)

L’anca è un’articolazione stabile
“ma”
consente un movimento triplanare


Ligaments and joint capsule
Acetabular labrum
Synovial membrane
Epiphyseal plate
Foveolar artery
Retinacular arteries
Obturator artery
Medial circumflex femoral artery

Chirurgia protesica: ANCA (2)

La stabilità dell’anca è determinata da *fattori anatomici* e *fisici*

Chirurgia protesica: ANCA (2)

Fattori anatomici - *Strutture ossee* -

Definiscono i fisiologici parametri geometrici articolari

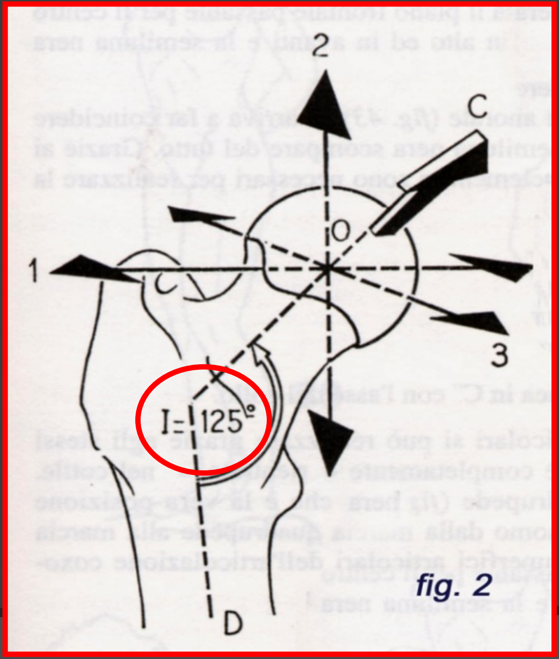

2
C
O
1
C
3
I= 125°
D

fig. 2

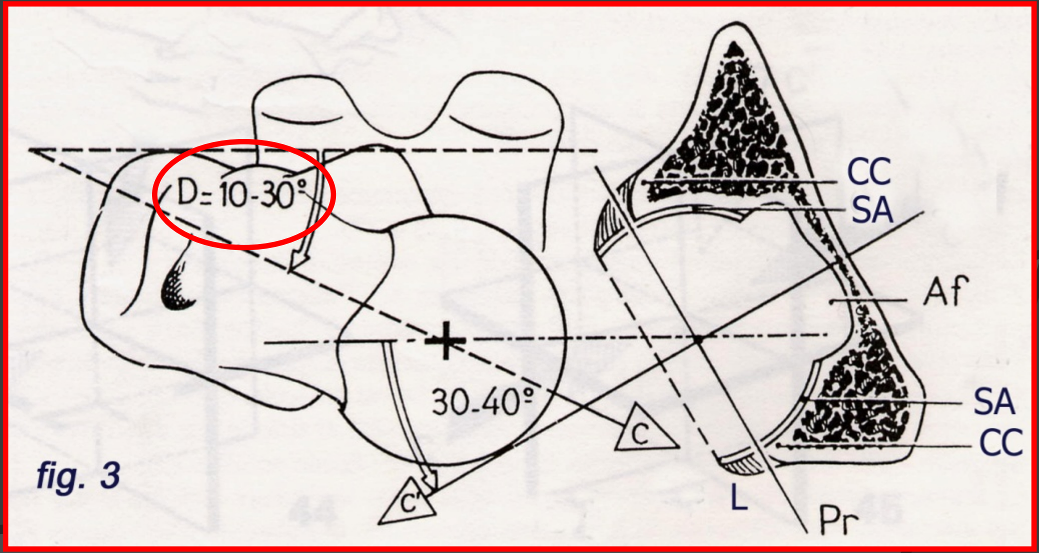
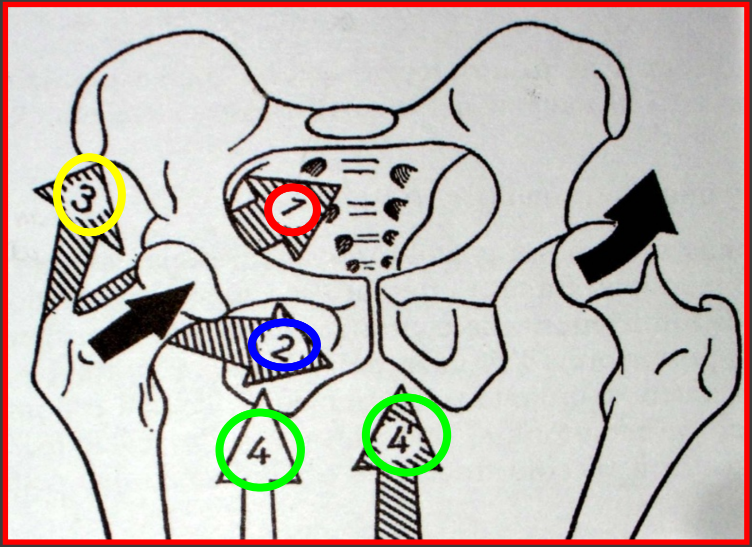

D= 10-30°
CC
SA
Af
30-40°
C
C'
L
Pr
SA
CC

fig. 3

Chirurgia protesica: ANCA (2)

Fattori anatomici *- Muscoli -*

I tiranti attivi “a decorso trasversale” esercitano una forza stabilizzante (MM. Extrarotatori)



1: piriforme
2: otturatorio esterno-interno
3: medio gluteo
4: adduttori

Chirurgia protesica: ANCA (2)

Fattori anatomici -*Capsula e legamenti*-

Capsula e legamenti ileo – pubo – ischio femorali svolgono un'azione coattante "posizione correlata"

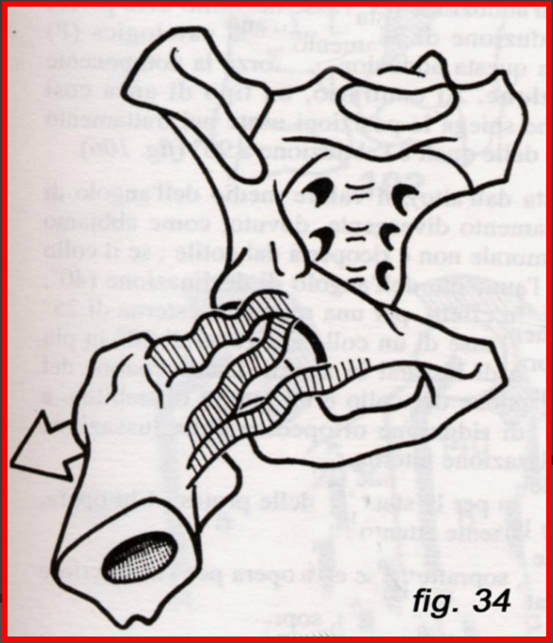


fig. 34

Chirurgia protesica: ANCA (2)

Fattori fisici *- PIN negativa -*

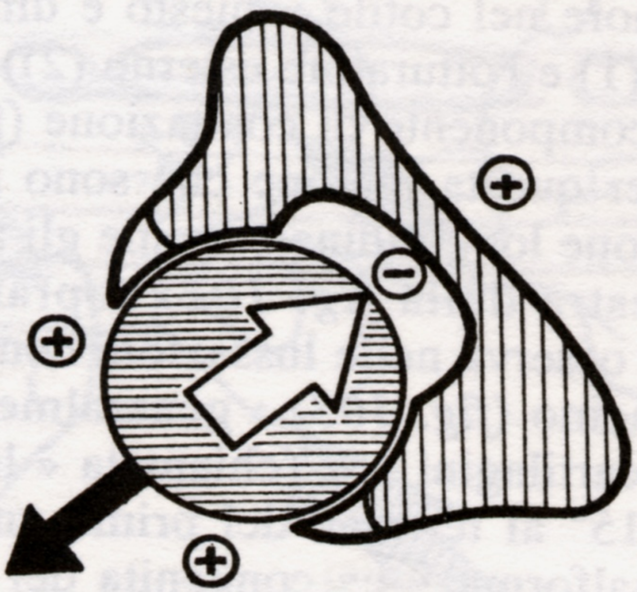


fig. 50

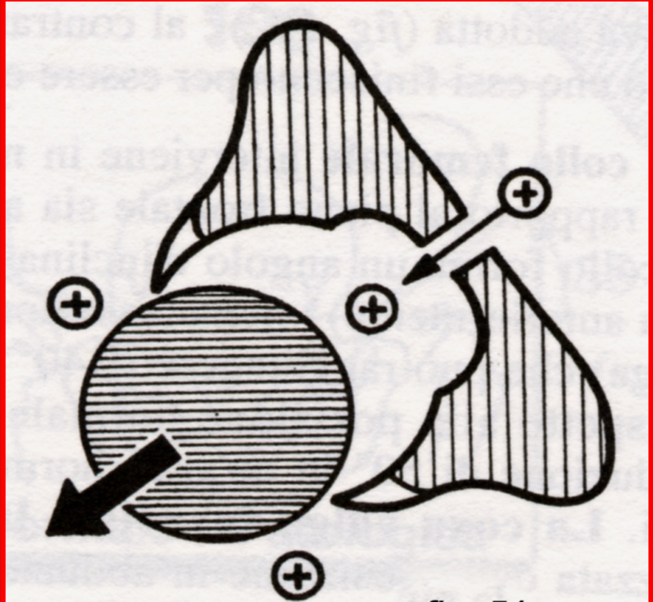


fig. 51

" esperienza dei fratelli Weber "

Chirurgia protesica: ANCA (3)

La vascolarizzazione dell'epifisi prossimale del femore è garantita dalle arterie

- Circonflesse (mediale e laterale)
- Nutritizia diafisaria

Chirurgia protesica: ANCA (3)

Le arterie circonflesse sono "vasi terminali"

↓

precarietà biologica

obliterata
nell'anziano

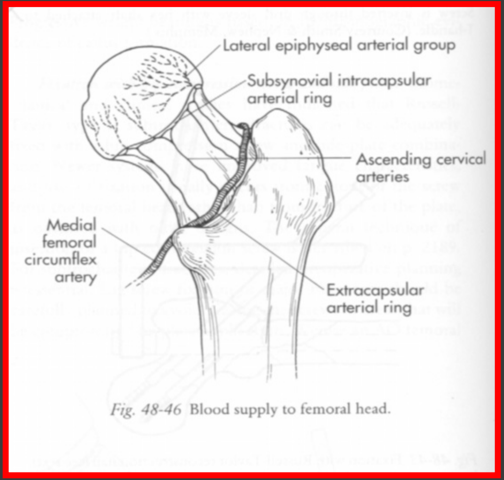
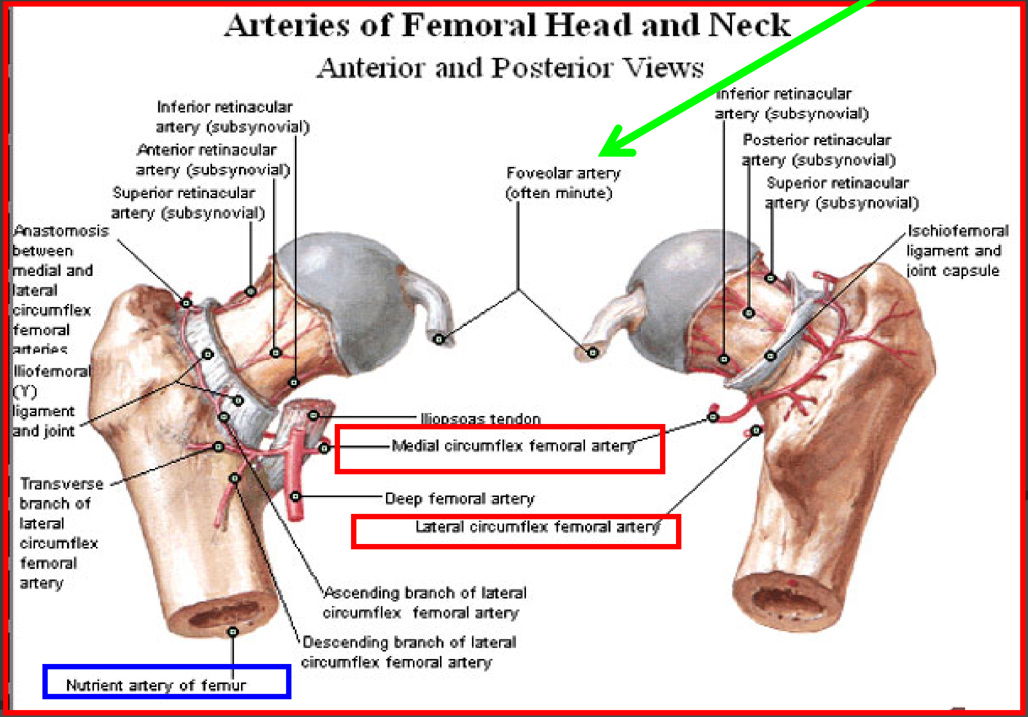

Lateral epiphyseal arterial group
Subsynovial intracapsular arterial ring
Ascending cervical arteries
Medial femoral circumflex artery
Extracapsular arterial ring

Fig. 48-46 Blood supply to femoral head.

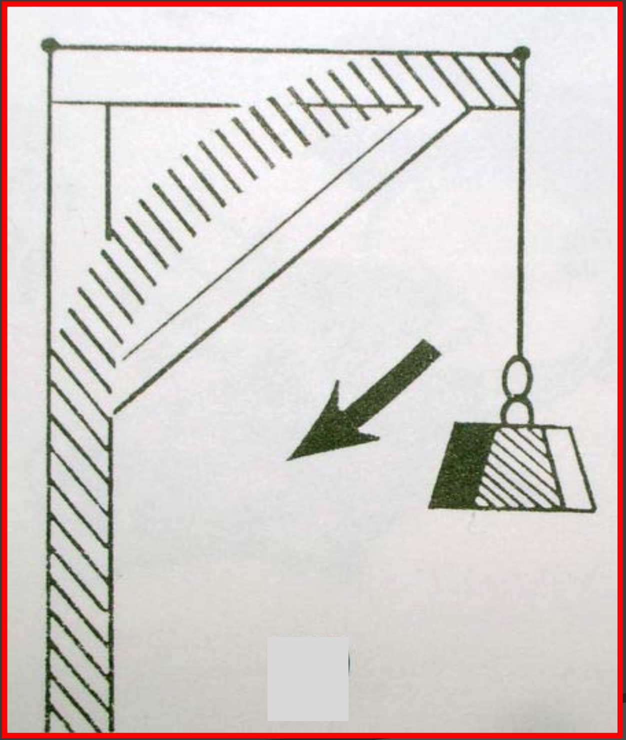

Arteries of Femoral Head and Neck

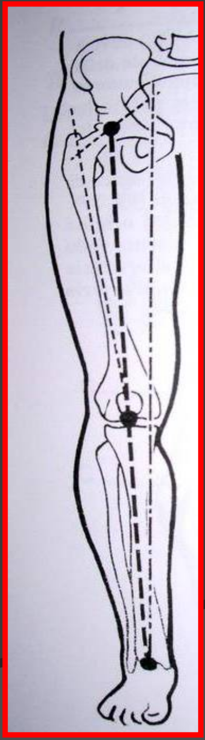
Anterior and Posterior Views

Inferior retinacular artery (subsynovial)
Anterior retinacular artery (subsynovial)
Superior retinacular artery (subsynovial)
Anastomosis between medial and lateral circumflex femoral arteries
Iliofemoral (Y) ligament and joint
Transverse branch of lateral circumflex femoral artery
Foveolar artery (often minute)
Inferior retinacular artery (subsynovial)
Posterior retinacular artery (subsynovial)
Superior retinacular artery (subsynovial)
Ischiofemoral ligament and joint capsule
Iliopsoas tendon
Medial circumflex femoral artery
Deep femoral artery
Lateral circumflex femoral artery
Ascending branch of lateral circumflex femoral artery
Descending branch of lateral circumflex femoral artery
Nutrient artery of femur

Chirurgia protesica: ANCA (4)

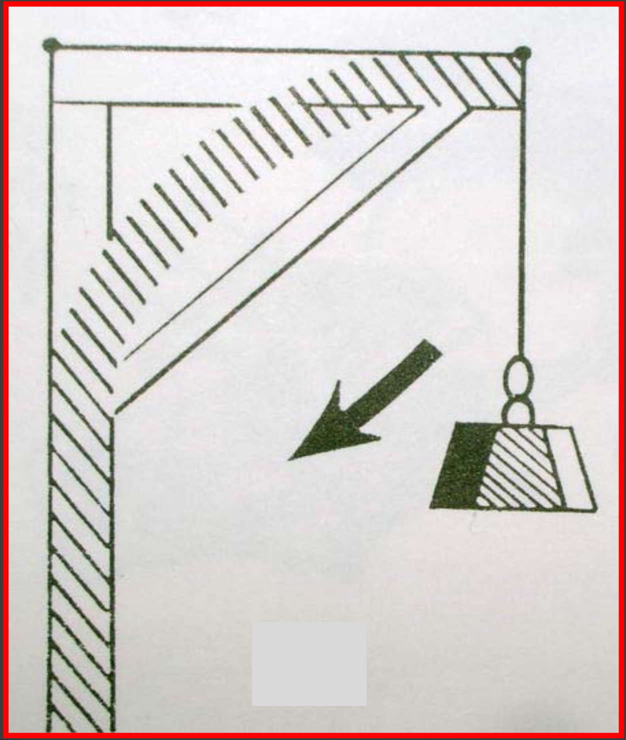
L’insieme di testa, collo e diafisi femorale realizza un sistema di “ costruzione a sbalzo”

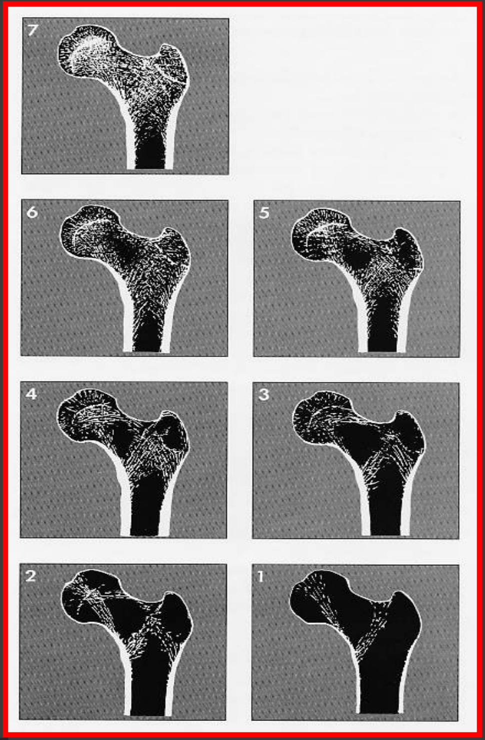


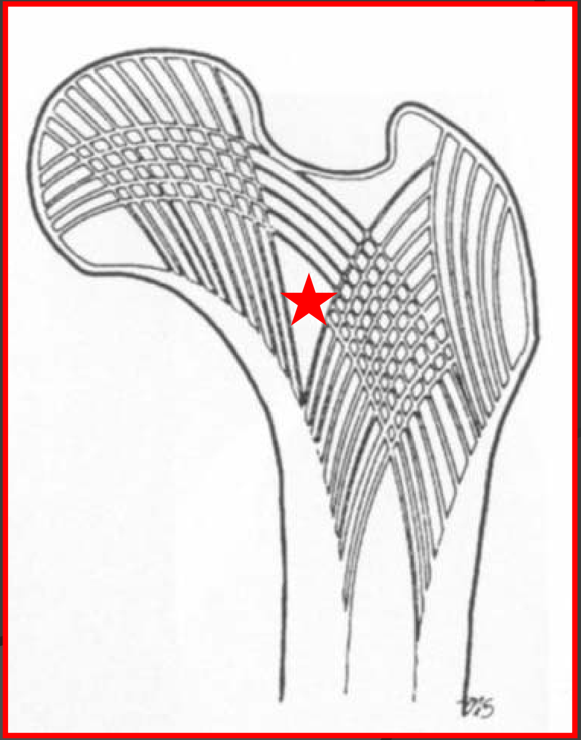


Chirurgia protesica: ANCA (4)

L’equilibrio strutturale è garantito dalle travate spongiose del collo femorale (fascio cefalico)







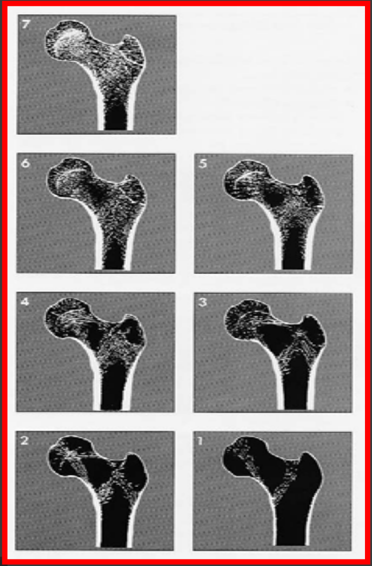
Chirurgia protesica: ANCA (4)

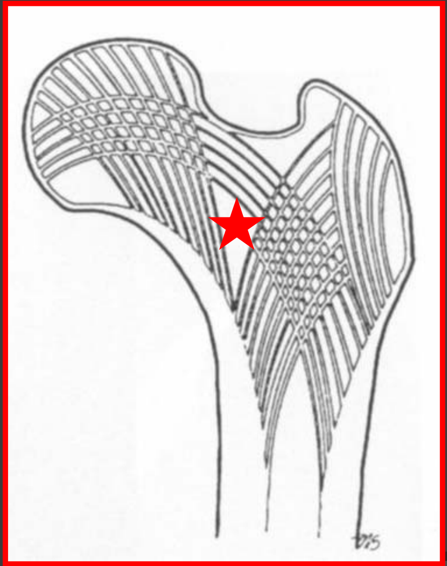
La < BMD indebolisce le travate spongiose

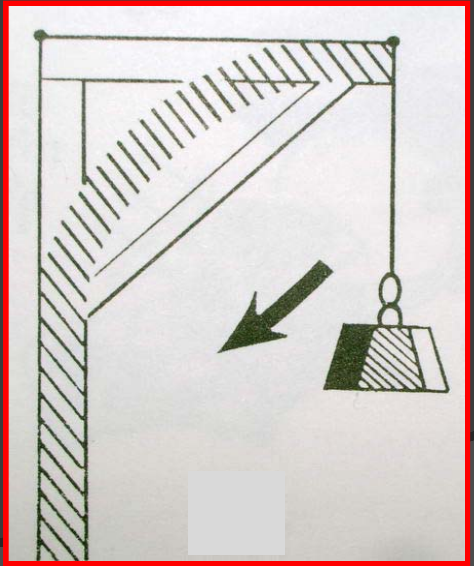
⇓

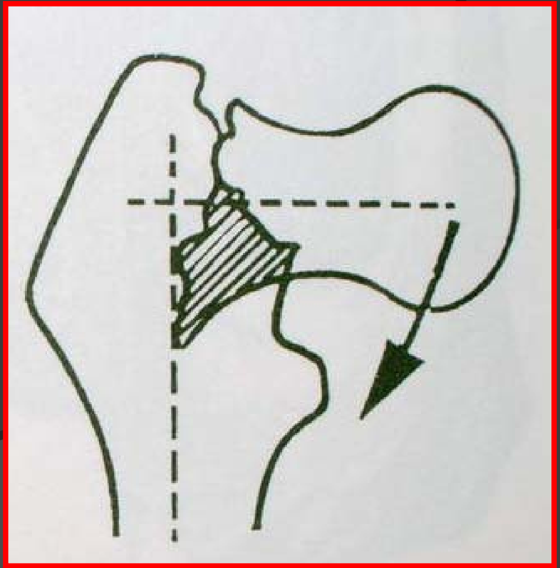
precarietà di resistenza meccanica distrettuale

(precarietà meccanica)





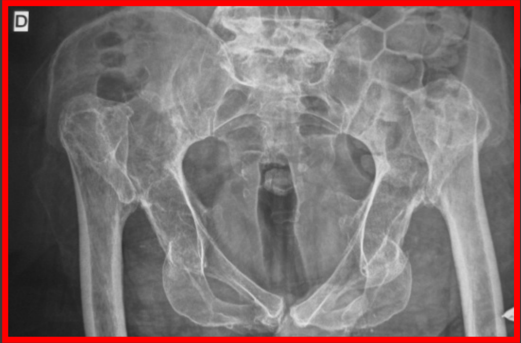


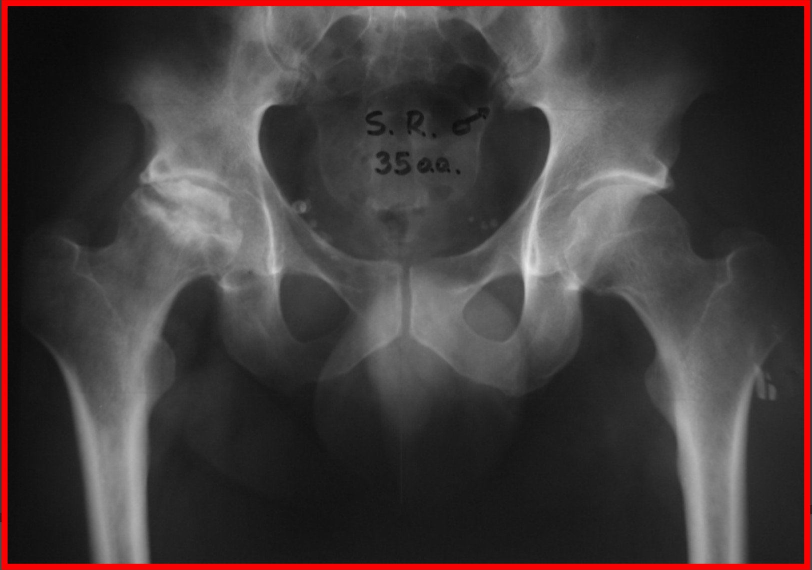


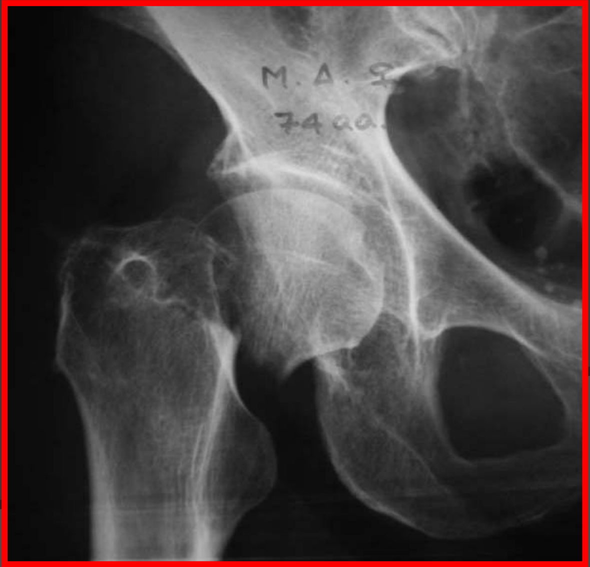
Chirurgia protesica: ANCA

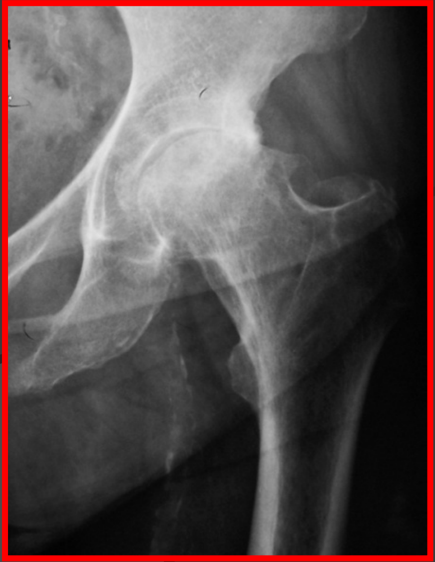
Indicazione chirurgica

- Coxartrosi
- Frattura mediale collo femore
- Malattie reumatiche (AR)
- Necrosi asettica testa femore
- Esiti LCA
- Fallimento di precedenti interventi articolari









Chirurgia protesica: ANCA

OBIETTIVO

Creare una “nuova normalità”

Recupero funzionalità articolare

Abolizione del dolore

PROTESI D’ANCA E DI GINOCCHIO

1) Perché impiantare una protesi articolare ? …(WHY ?)

2) Che cos’è una protesi articolare ? …(WHAT ?)

3) Quale tipo di protesi articolare ? …(WHICH ?)

WWW.protesiarticolare.oeit

PROTESI D'ANCA E DI GINOCCHIO

La protesi articolare è
un dispositivo medico-ortopedico,
modulare, cementato o no,
utile per il trattamento terapeutico di
una patologie osteoarticolare
degenerativa, infiammatoria o traumatica

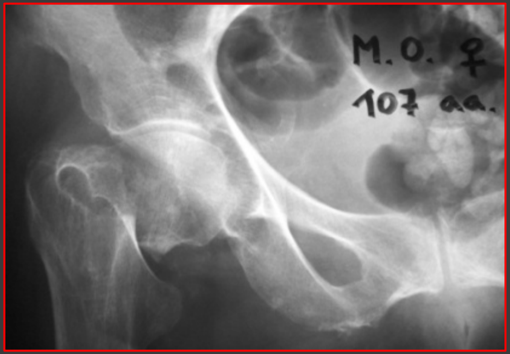
Chirurgia protesica: ANCA

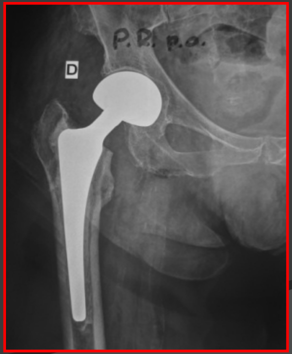
La **protesi d'anca** è
un dispositivo modulare (assemblabile),
cementato o no,
che prevede la plastica parziale **(ENDOPROTESI)**
o totale **(ARTROPROTESI)** dell'articolazione

Chirurgia protesica: ANCA

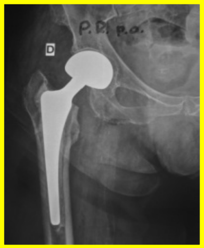
ENDOPROTESI (PROTESI PARZIALE)

E’ una plastica dell’articolazione
che prevede
la sostituzione della testa femorale fratturata
con una cupola metallica
di uguale dimensione
della testa femorale asportata

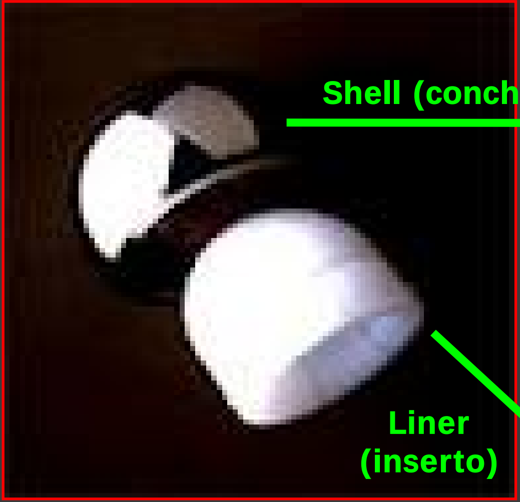




Chirurgia protesica: ANCA

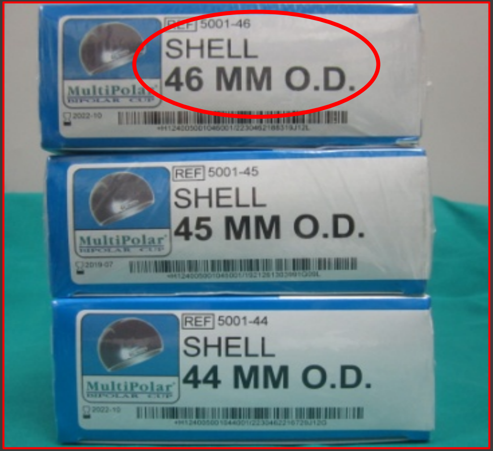


ENDOPROTESI (PROTESI PARZIALE)



Shell (conchiglia)

Liner (inserto)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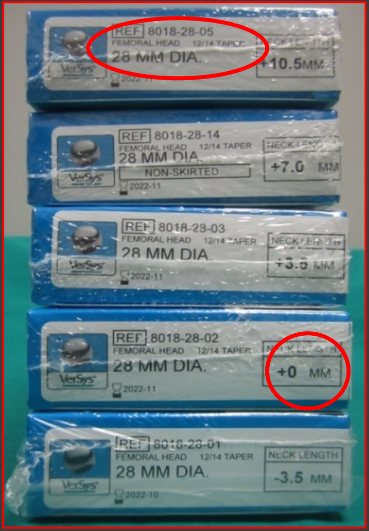
SHELL
46 MM O.D.
MultiPolar BIPOLAR CUP
2022-10
REF 5001-45
SHELL
45 MM O.D.
MultiPolar BIPOLAR CUP
2019-07
REF 5001-44
SHELL
44 MM O.D.
MultiPolar BIPOLAR CUP
2022-10


REF 8018-28-05
FEMORAL HEAD 12/14 TAPER
28 MM DIA.
+10.5MM
VerSys
REF 8018-28-14
FEMORAL HEAD 12/14 TAPER
28 MM DIA.
NON-SKIRTED
NECK LENGTH
+7.0 MM
2022-11
REF 8018-28-03
FEMORAL HEAD 12/14 TAPER
28 MM DIA.
NECK LENGTH
+3.5 MM
2022-11
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FEMORAL HEAD 12/14 TAPER
28 MM DIA.
+0 MM
2022-11
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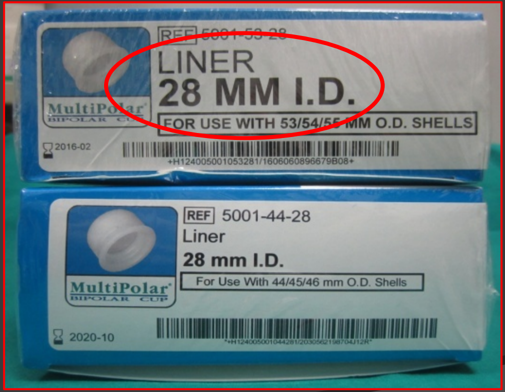
FEMORAL HEAD 12/14 TAPER
28 MM DIA.
NECK LENGTH
-3.5 MM
2022-10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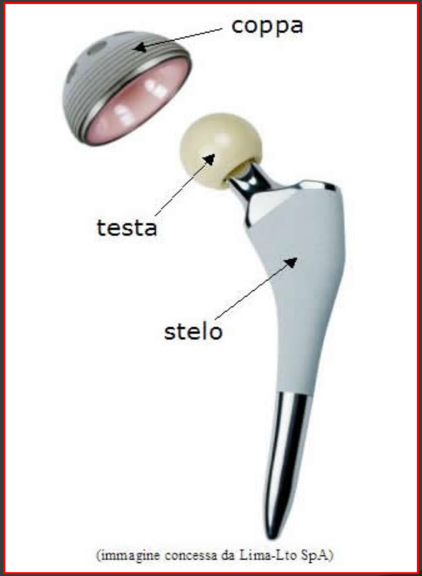
LINER
28 MM I.D.
FOR USE WITH 53/54/55 MM O.D. SHELLS
MultiPolar BIPOLAR CUP
2016-02
REF 5001-44-28
Liner
28 mm I.D.
For Use With 44/45/46 mm O.D. Shells
MultiPolar BIPOLAR CUP
2020-10

CEMENTED
STD STEM
10
16
8
14
8
12
6
12

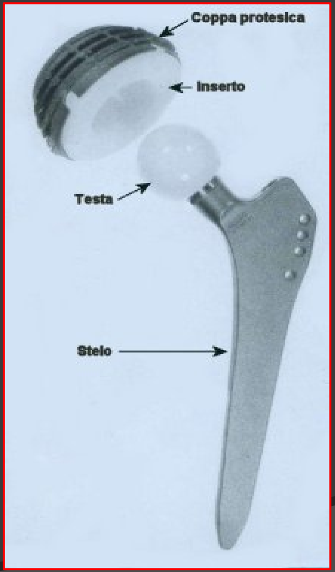
Chirurgia protesica: ANCA

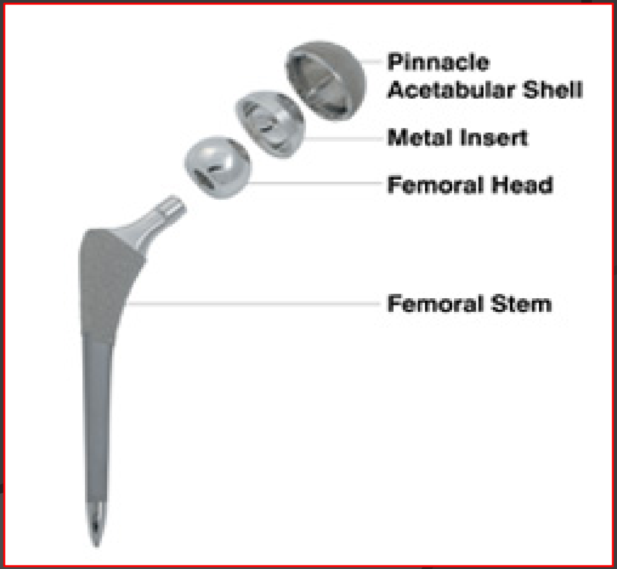
ARTROPROTESI (PROTESI TOTALE)

E' una plastica dell'articolazione che prevede la protesizzazione del cotile e del femore con componenti modulari, cementate o no


coppa
testa
stelo

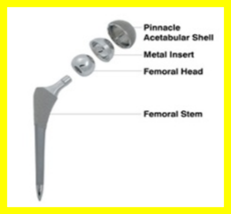
(immagine concessa da Lima-Lto SpA)

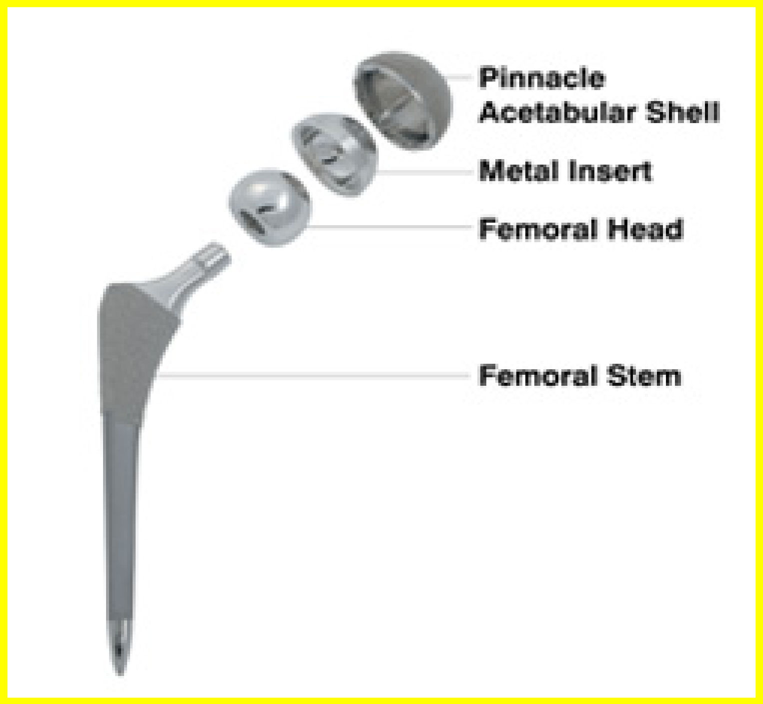

Coppa protesica
Inserto
Testa
Stelo


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem

COMPONENTI PROTESICI

a)Cotile

b)Intercotile

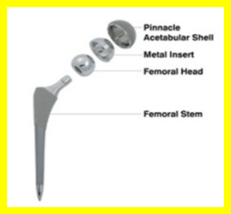
c)Testina

d)Stelo

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)

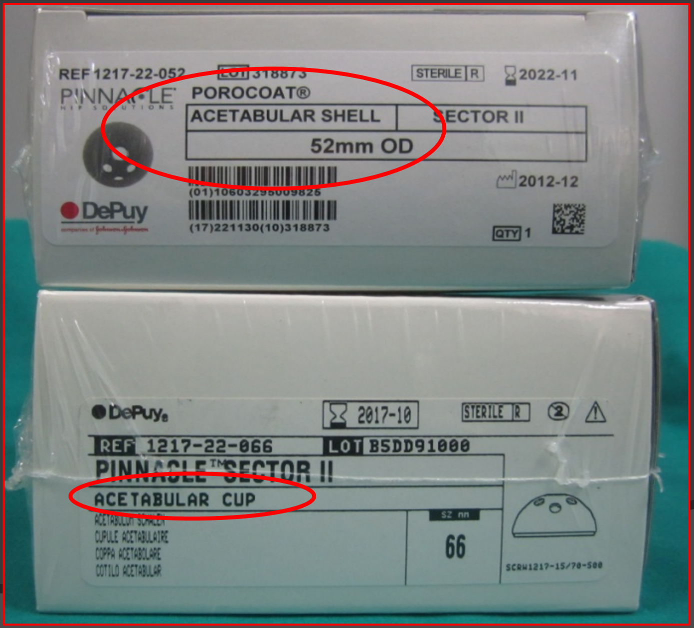
COMPONENTI PROTESICHE

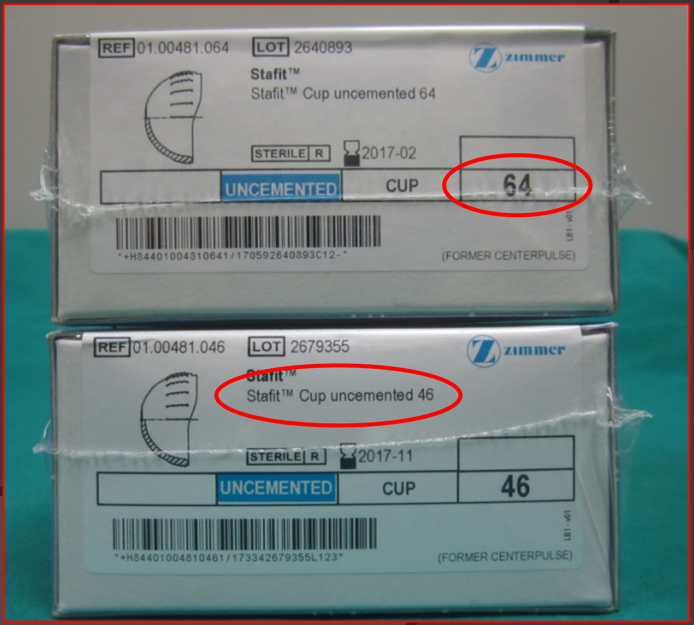

Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem

Cotile, coppa, shell (conchiglia),
metal back (posteriore metallico)

Materiale: Titanio (magnetocompatibile)

Può contenere intercotile fisso o
mobilie ("doppia mobilità")

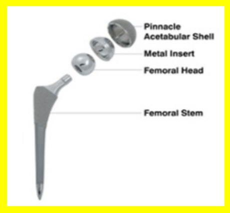

REF 1217-22-052
LOT 318873
STERILE R
2022-11
PINNACLE HIP SOLUTIONS
POROCOAT®
ACETABULAR SHELL
SECTOR II
52mm OD
2012-12
DePuy
QTY 1
DePuy
2017-10
STERILE R
REF 1217-22-066
LOT B5DD91000
PINNACLE™ SECTOR II
ACETABULAR CUP
66

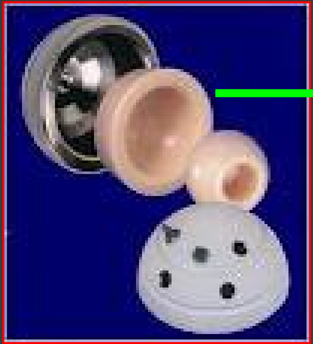

REF 01.00481.064
LOT 2640893
zimmer
Stafit™
Stafit™ Cup uncemented 64
STERILE R
2017-02
UNCEMENTED
CUP
64
(FORMER CENTERPULSE)
REF 01.00481.046
LOT 2679355
zimmer
Stafit™
Stafit™ Cup uncemented 46
STERILE R
2017-11
UNCEMENTED
CUP
46
(FORMER CENTERPULSE)

Chirurgia protesica: ANCA

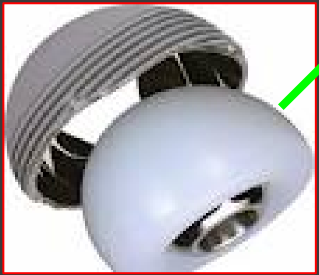
ARTROPROTESI (PROTESI TOTALE)

COMPONENTI PROTESICHE


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem



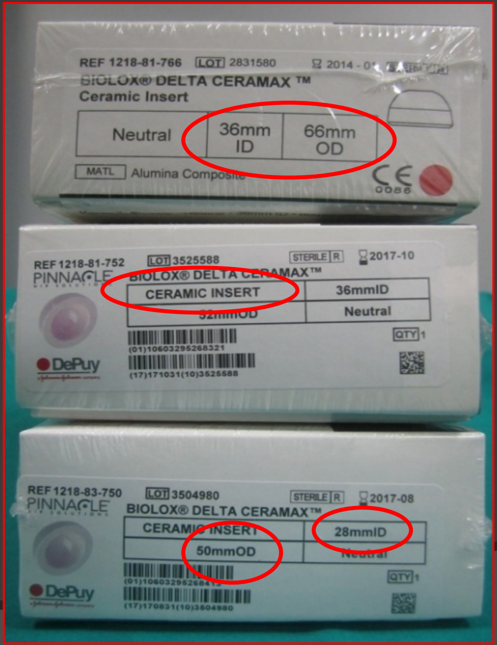
Inserto fisso

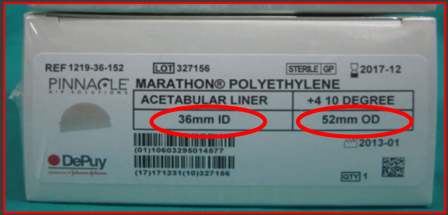


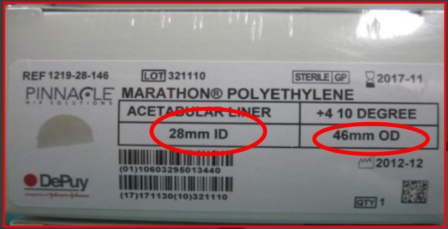
**Inserto mobile
“doppia mobilità”**

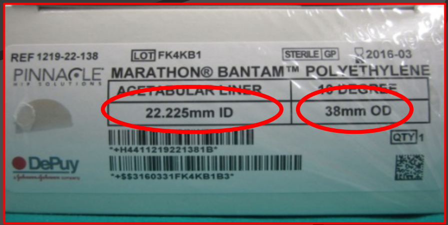
Intercotile, inserto, liner

(materiale: *ceramica, UHMWPE*, *metallo*)


REF 1218-81-766 LOT 2831580 2014-01
BIOLOX® DELTA CERAMAX ™
Ceramic Insert
Neutral
36mm ID
66mm OD
MATL Alumina Composite
CE 0086
REF 1218-81-752 LOT 3525588 STERILE R 2017-10
PINNACLE
BIOLOX® DELTA CERAMAX™
CERAMIC INSERT
36mmID
52mmOD
Neutral
QTY 1
DePuy
REF 1218-83-750 LOT 3504980 STERILE R 2017-08
PINNACLE
BIOLOX® DELTA CERAMAX™
CERAMIC INSERT
28mmID
50mmOD
Neutral
QTY 1
DePuy


REF 1219-36-152 LOT 327156 STERILE GP 2017-12
PINNACLE
MARATHON® POLYETHYLENE
ACETABULAR LINER
+4 10 DEGREE
36mm ID
52mm OD
2013-01
QTY 1
DePuy

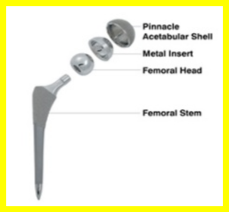

REF 1219-28-146 LOT 321110 STERILE GP 2017-11
PINNACLE
MARATHON® POLYETHYLENE
ACETABULAR LINER
+4 10 DEGREE
28mm ID
46mm OD
2012-12
QTY 1
DePuy

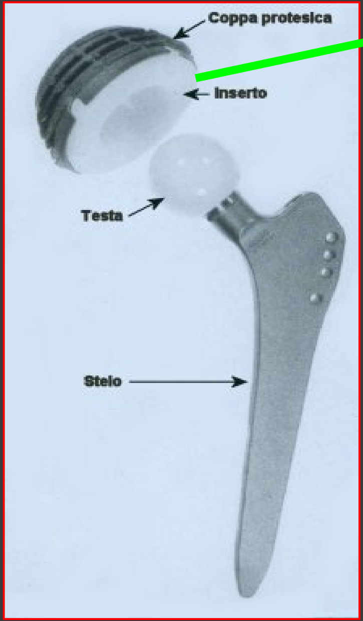

REF 1219-22-138 LOT FK4KB1 STERILE GP 2016-03
PINNACLE
MARATHON® BANTAM™ POLYETHYLENE
ACETABULAR LINER
10 DEGREE
22.225mm ID
38mm OD
QTY 1
DePuy

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)

COMPONENTI PROTESICHE

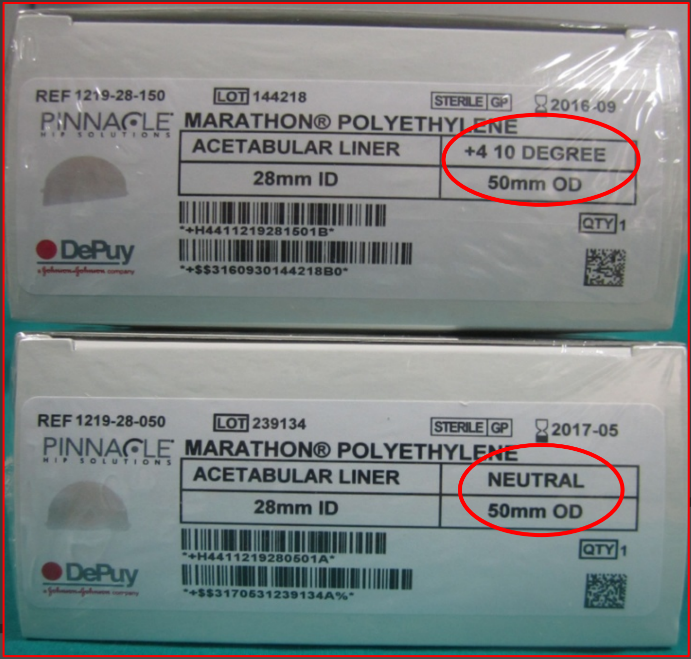

Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem


Coppa protesica
Inserto
Testa
Stelo

Inserto fisso

Intercotile, inserto, liner

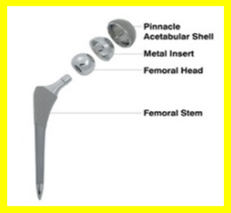
(materiale: *ceramica*, *UHMWPE*, *metallo*)

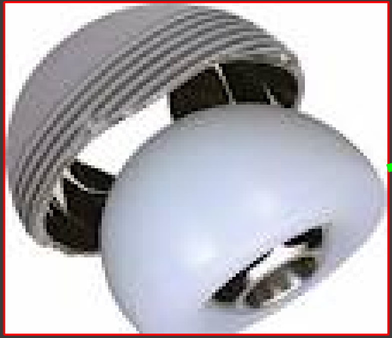

REF 1219-28-150
LOT 144218
STERILE GP
2016-09
PINNACLE HIP SOLUTIONS
MARATHON® POLYETHYLENE
ACETABULAR LINER
+4 10 DEGREE
28mm ID
50mm OD
QTY 1
DePuy
+H4411219281501B
+$$3160930144218B0
REF 1219-28-050
LOT 239134
STERILE GP
2017-05
PINNACLE HIP SOLUTIONS
MARATHON® POLYETHYLENE
ACETABULAR LINER
NEUTRAL
28mm ID
50mm OD
QTY 1
DePuy
+H4411219280501A
+$$3170531239134A%

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)

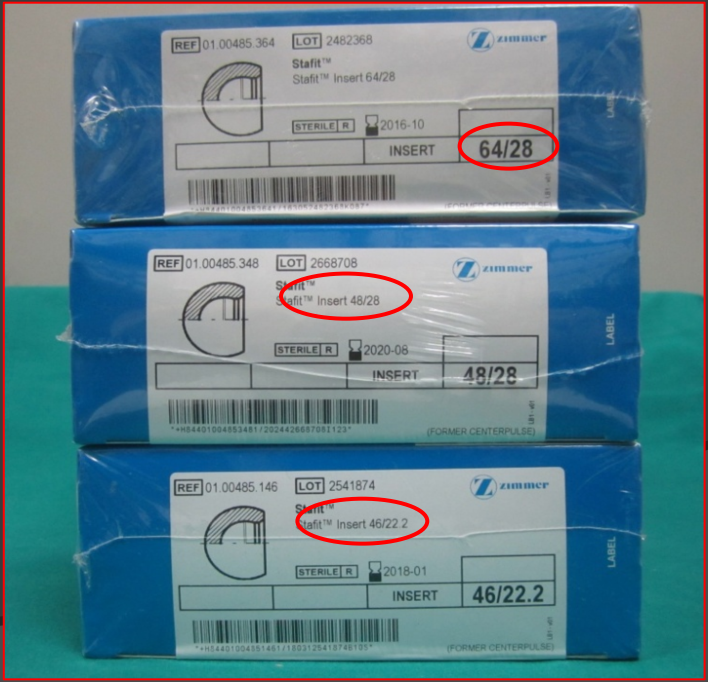
COMPONENTI PROTESICHE

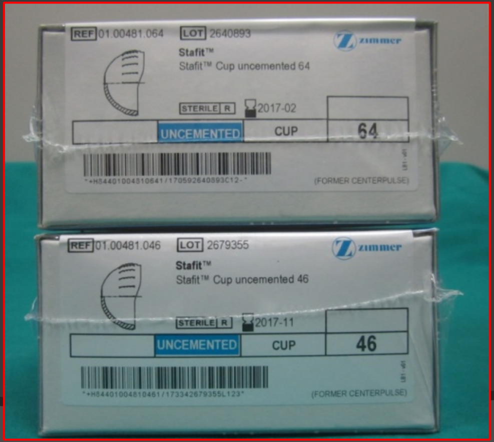

Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem



Inserto mobile
"doppia mobilità"

Intercotile, inserto, liner
(materiale: *ceramica, UHMWPE, metallo*)

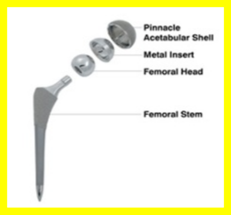

REF 01.00485.364 LOT 2482368
zimmer
Stafit™
Stafit™ Insert 64/28
STERILE R
2016-10
INSERT
64/28
REF 01.00485.348 LOT 2668708
zimmer
Stafit™
Stafit™ Insert 48/28
STERILE R
2020-08
INSERT
48/28
(FORMER CENTERPULSE)
REF 01.00485.146 LOT 2541874
zimmer
Stafit™
Stafit™ Insert 46/22.2
STERILE R
2018-01
INSERT
46/22.2
(FORMER CENTERPULSE)


REF 01.00481.064 LOT 2640893
zimmer
Stafit™
Stafit™ Cup uncemented 64
STERILE R
2017-02
UNCEMENTED
CUP
64
(FORMER CENTERPULSE)
REF 01.00481.046 LOT 2679355
zimmer
Stafit™
Stafit™ Cup uncemented 46
STERILE R
2017-11
UNCEMENTED
CUP
46
(FORMER CENTERPULSE)

Chirurgia protesica: ANCA

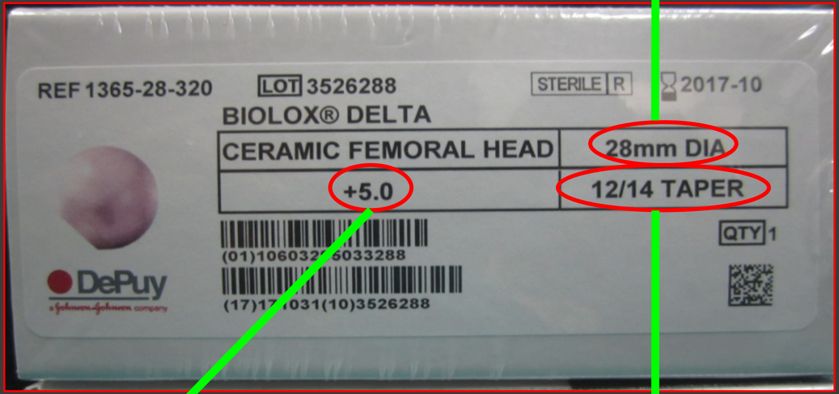
ARTROPROTESI (PROTESI TOTALE)

COMPONENTI PROTESICHE


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem

Testina protesica, femoral head

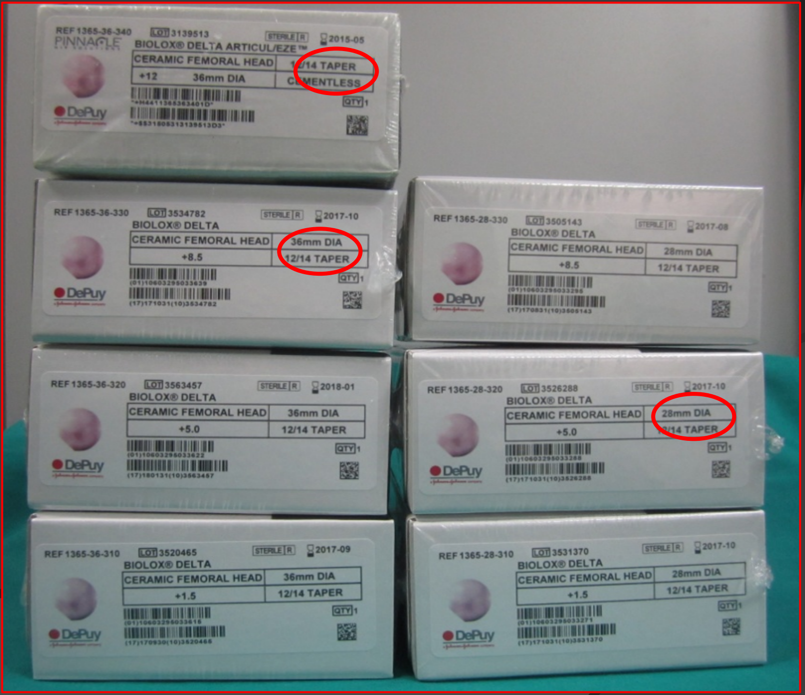
(materiale: *ceramica, metallo – Cr-Co*)


REF 1365-28-320
LOT 3526288
STERILE R
2017-10
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
28mm DIA
+5.0
12/14 TAPER
QTY 1
(01)10603295033288
(17)171031(10)3526288
DePuy

Diametro testina

Lunghezza collo
(neck length)

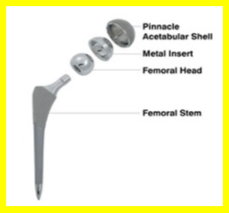
Accoppiamento conico
testina-stelo ("cono morse")


REF 1365-36-340
LOT 3139513
2015-05
PINNACLE
BIOLOX® DELTA ARTICUL/EZE™
CERAMIC FEMORAL HEAD
12/14 TAPER
+12
36mm DIA
CEMENTLESS
REF 1365-36-330
LOT 3534782
2017-10
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
36mm DIA
+8.5
12/14 TAPER
REF 1365-28-330
LOT 3505143
2017-08
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
28mm DIA
+8.5
12/14 TAPER
REF 1365-36-320
LOT 3563457
2018-01
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
36mm DIA
+5.0
12/14 TAPER
REF 1365-28-320
LOT 3526288
2017-10
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
28mm DIA
+5.0
12/14 TAPER
REF 1365-36-310
LOT 3520465
2017-09
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
36mm DIA
+1.5
12/14 TAPER
REF 1365-28-310
LOT 3531370
2017-10
BIOLOX® DELTA
CERAMIC FEMORAL HEAD
28mm DIA
+1.5
12/14 TAPER
DePuy

Chirurgia protesica: ANCA

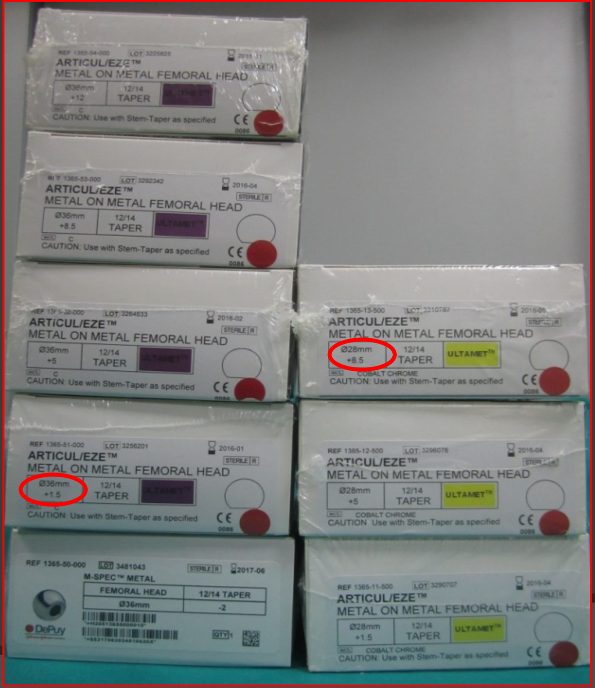
ARTROPROTESI (PROTESI TOTALE)

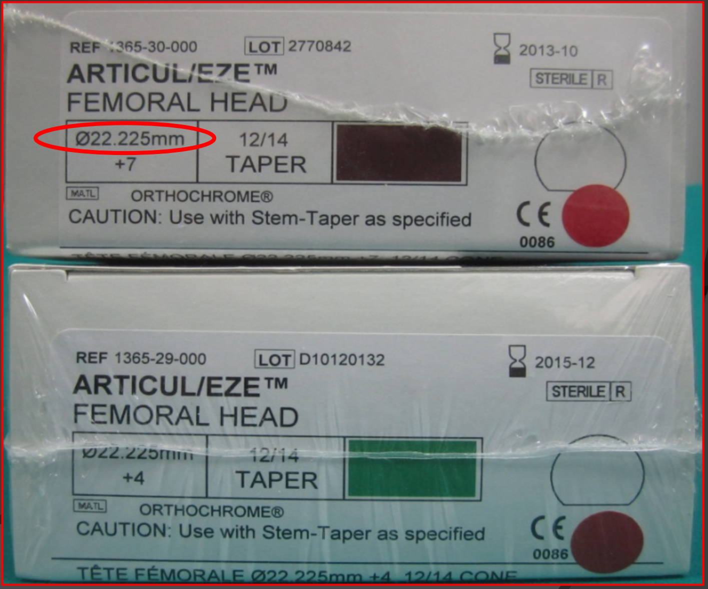
COMPONENTI PROTESICHE


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem

Testina protesica, femoral head

(materiale: *ceramica*, *metallo – Cr-Co*)

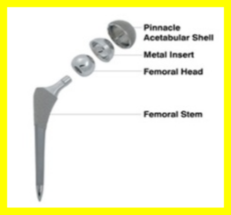

ARTICUL/EZE™
METAL ON METAL FEMORAL HEAD
Ø36mm +12
12/14 TAPER
Ø36mm +8.5
Ø36mm +5
Ø36mm +1.5
Ø28mm +8.5
Ø28mm +5
Ø28mm +1.5
ULTAMET™
COBALT CHROME
CAUTION: Use with Stem-Taper as specified
REF 1365-50-000
LOT 3481043
2017-06
M-SPEC™ METAL
FEMORAL HEAD
12/14 TAPER
Ø36mm
-2
DePuy

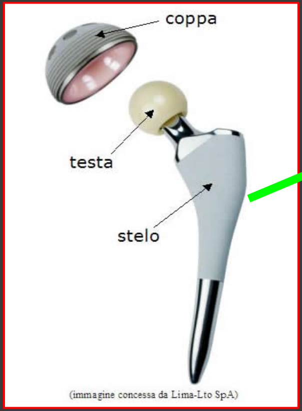

REF 1365-30-000
LOT 2770842
2013-10
STERILE R
ARTICUL/EZE™
FEMORAL HEAD
Ø22.225mm +7
12/14 TAPER
MATL ORTHOCHROME®
CAUTION: Use with Stem-Taper as specified
0086
REF 1365-29-000
LOT D10120132
2015-12
STERILE R
ARTICUL/EZE™
FEMORAL HEAD
Ø22.225mm +4
12/14 TAPER
MATL ORTHOCHROME®
CAUTION: Use with Stem-Taper as specified
0086
TÊTE FÉMORALE Ø22.225mm +4 12/14 CONE

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)

COMPONENTI PROTESICHE


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem


coppa
testa
stelo

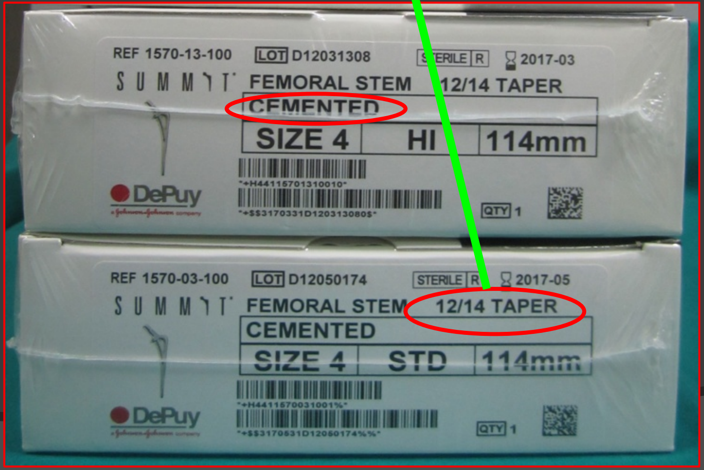
(immagine concessa da Lima-Lto SpA)

Stelo femorale, femoral stem

(materiale: *Titanio, Acciaio inox* -steli cem.-)

Può avere diversi angoli "I" e quindi diversi off-set

Accoppiamento conico testina-stelo ("cono morse")

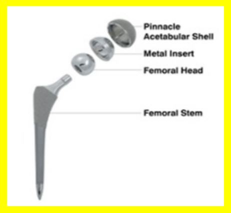

REF 1570-13-100
LOT D12031308
STERILE R
2017-03
SUMMIT FEMORAL STEM 12/14 TAPER
CEMENTED
SIZE 4
HI
114mm
DePuy
QTY 1
REF 1570-03-100
LOT D12050174
STERILE R
2017-05
SUMMIT FEMORAL STEM 12/14 TAPER
CEMENTED
SIZE 4
STD
114mm
DePuy
QTY 1

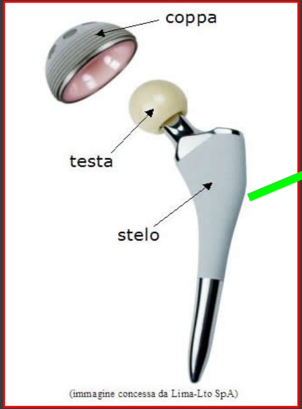
zimmer
MS-30®
MS-30® Stem cemented
standard Taper 12/14
CEMENTED
STD STEM
10
16
8
14
8
12
6
12

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)

COMPONENTI PROTESICHE


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem


coppa
testa
stelo

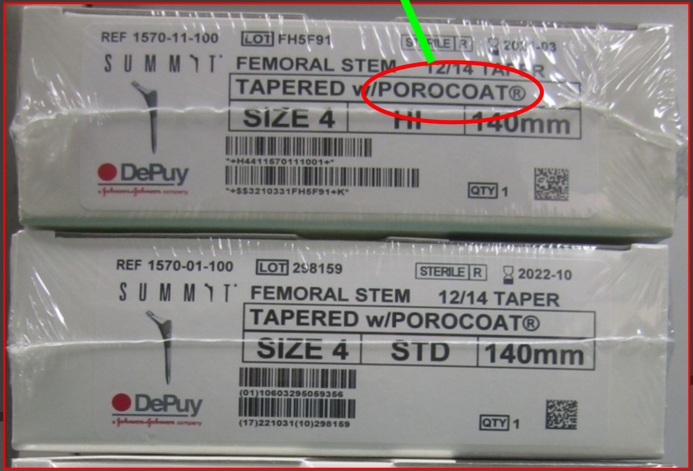
(immagine concessa da Lima-Lto SpA)

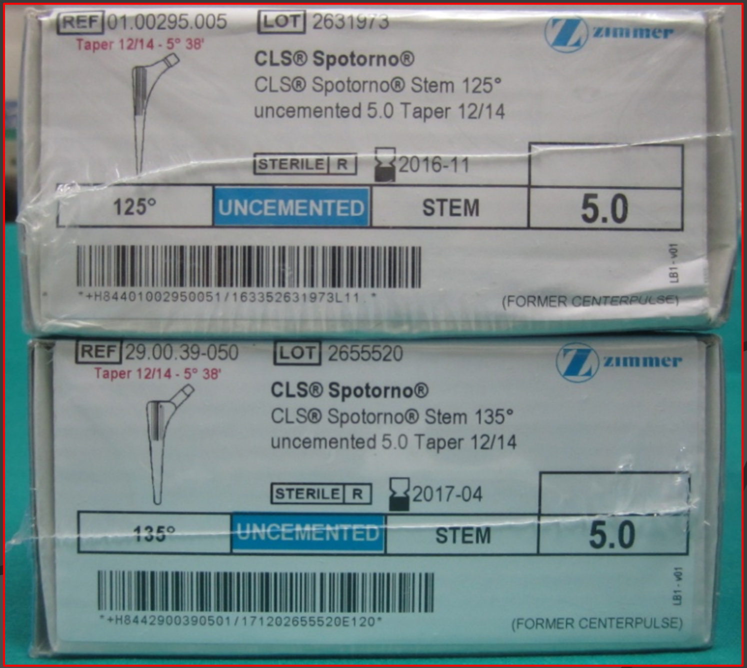
Stelo femorale, femoral stem

(materiale: *Titanio*, *Acciaio inox* -steli cem.-)

Può avere diversi angoli "I" e quindi diversi off-set

Rivestimento poroso che favorisce l'incastro a pressione ("press-fit")

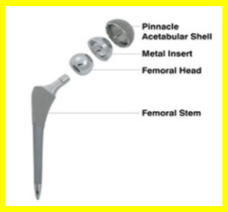

REF 1570-11-100
LOT FH5F91
STERILE R
SUMMIT
FEMORAL STEM 12/14 TAPER
TAPERED w/POROCOAT®
SIZE 4
HI
140mm
QTY 1
DePuy
REF 1570-01-100
LOT 298159
STERILE R
2022-10
SUMMIT
FEMORAL STEM 12/14 TAPER
TAPERED w/POROCOAT®
SIZE 4
STD
140mm
QTY 1
DePuy

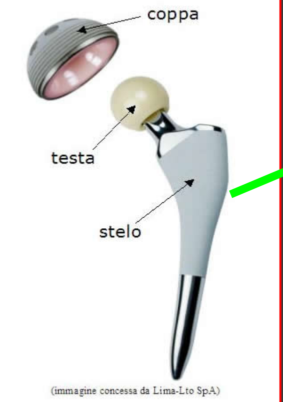

REF 01.00295.005
LOT 2631973
zimmer
Taper 12/14 - 5° 38'
CLS® Spotorno®
CLS® Spotorno® Stem 125°
uncemented 5.0 Taper 12/14
STERILE R
2016-11
125°
UNCEMENTED
STEM
5.0
(FORMER CENTERPULSE)
REF 29.00.39-050
LOT 2655520
zimmer
Taper 12/14 - 5° 38'
CLS® Spotorno®
CLS® Spotorno® Stem 135°
uncemented 5.0 Taper 12/14
STERILE R
2017-04
135°
UNCEMENTED
STEM
5.0
(FORMER CENTERPULSE)

Chirurgia protesica: ANCA

ARTROPROTESI (PROTESI TOTALE)

COMPONENTI PROTESICHE


Pinnacle Acetabular Shell
Metal Insert
Femoral Head
Femoral Stem


coppa
testa
stelo

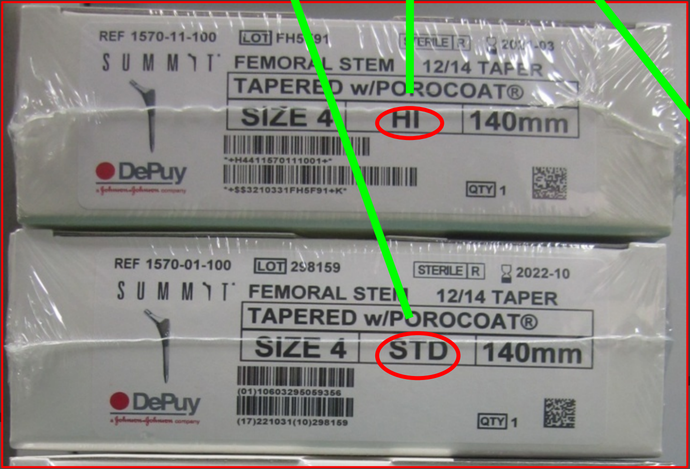
(immagine concessa da Lima-Lto SpA)

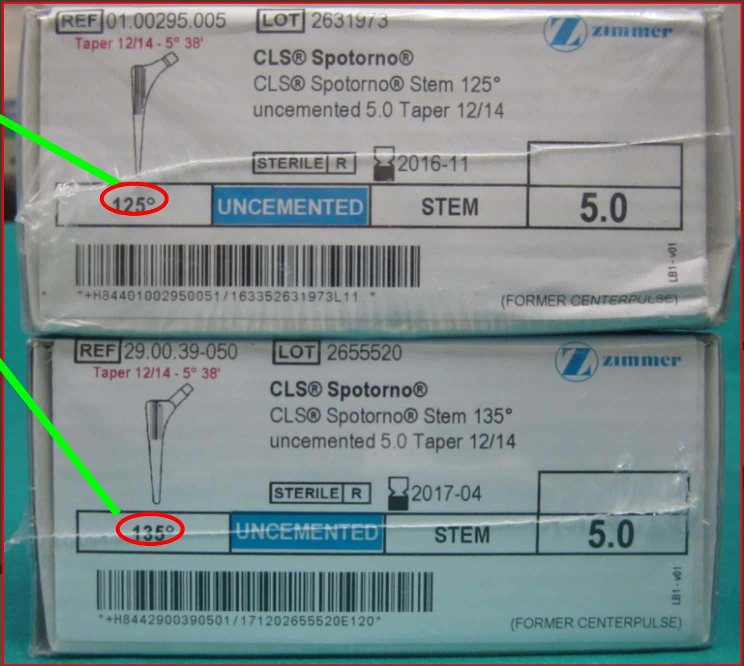
Stelo femorale, femoral stem

(materiale: *Titanio*, *Acciaio inox* -steli cem.-)

Può avere diversi angoli "I" e quindi diversi off-set

"off-set" variabile


REF 1570-11-100
LOT FH5F91
STERILE R
SUMMIT
FEMORAL STEM 12/14 TAPER
TAPERED w/POROCOAT®
SIZE 4
HI
140mm
DePuy
QTY 1
REF 1570-01-100
LOT 298159
STERILE R
2022-10
SUMMIT
FEMORAL STEM 12/14 TAPER
TAPERED w/POROCOAT®
SIZE 4
STD
140mm
DePuy
QTY 1


REF 01.00295.005
LOT 2631973
Taper 12/14 - 5° 38'
zimmer
CLS® Spotorno®
CLS® Spotorno® Stem 125°
uncemented 5.0 Taper 12/14
STERILE R
2016-11
125°
UNCEMENTED
STEM
5.0
(FORMER CENTERPULSE)
REF 29.00.39-050
LOT 2655520
Taper 12/14 - 5° 38'
zimmer
CLS® Spotorno®
CLS® Spotorno® Stem 135°
uncemented 5.0 Taper 12/14
STERILE R
2017-04
135°
UNCEMENTED
STEM
5.0
(FORMER CENTERPULSE)

PROTESI D'ANCA E DI GINOCCHIO

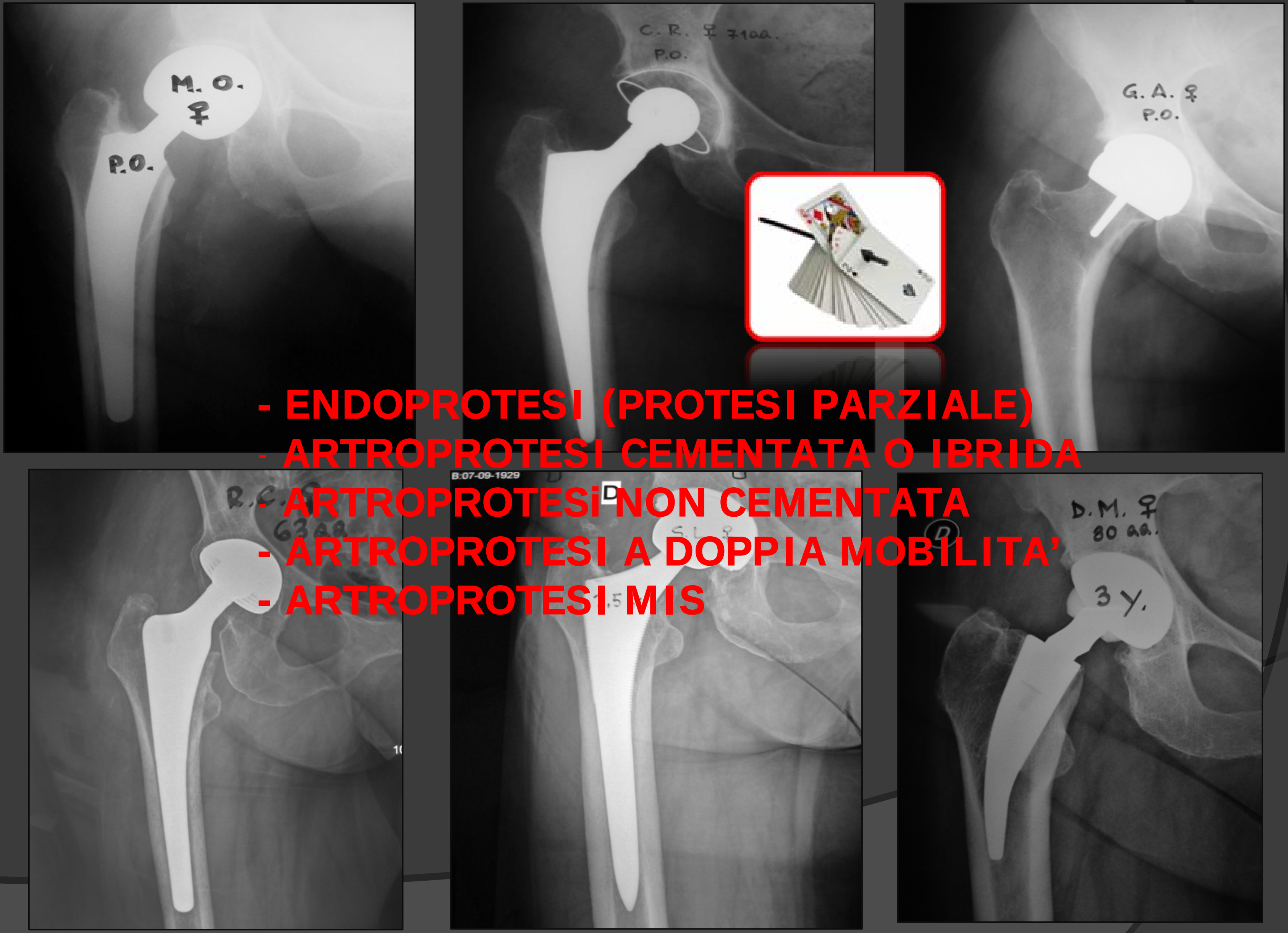
1) Perché impiantare una protesi articolare ? …(WHY ?)

2) Che cos'è una protesi articolare ? …(WHAT ?)

3) Quale tipo di protesi articolare ? …(WHICH ?)

WWW.protesiarticolare.oeit

Chirurgia protesica: ANCA


M. O.
♀
P.O.
C. R. ♀ 71aa.
P.O.
G. A. ♀
P.O.
R.C.♀
63aa
B:07-09-1929
D
S.L. ♀
1.5
10
D
D.M. ♀
80 aa.
3 y.

- ENDOPROTESI (PROTESI PARZIALE)
- ARTROPROTESI CEMENTATA O IBRIDA
- ARTROPROTESI NON CEMENTATA
- ARTROPROTESI A DOPPIA MOBILITA'
- ARTROPROTESI MIS

Chirurgia protesica: ANCA

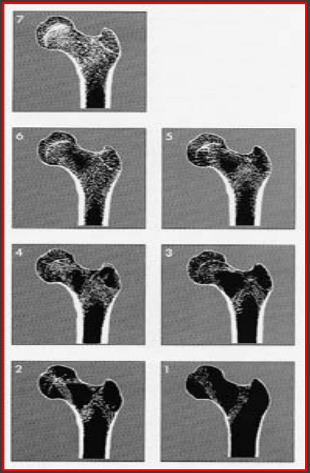
STRATEGIA CHIRURGICA

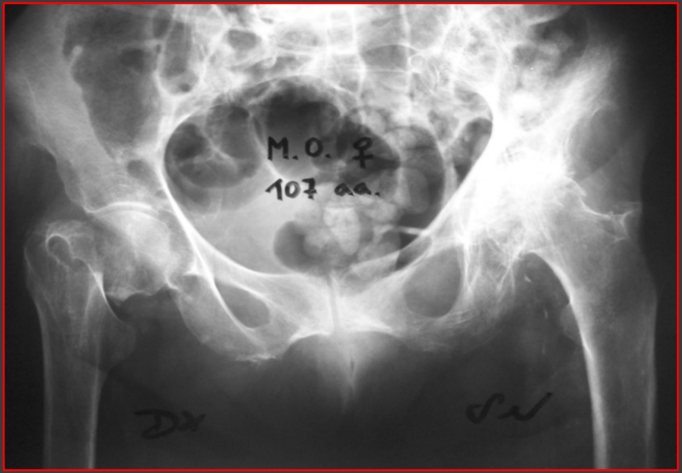
Età del paziente (età biologica)
Criteri anamnestici (osteoporosi, AR, OA…)
Criteri radiografici
Planning pre-operatorio (!!!)

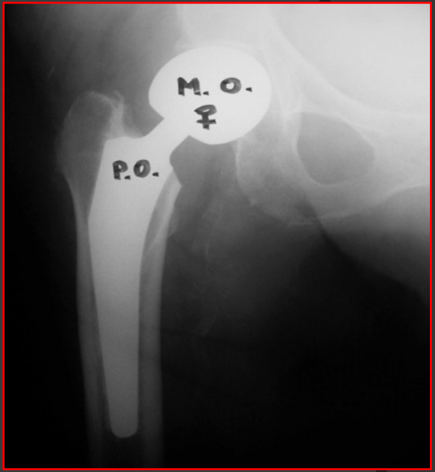
ospedale
autostrada
A 3
ospedale
A 3
autostrada

Chirurgia protesica: ANCA

ENDOPROTESI (PROTESI PARZIALE)




M.O. ♀
107 aa.
Dx
Sn



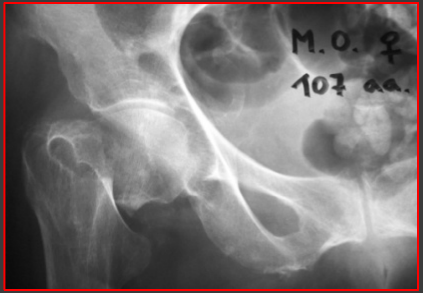
- Indicazione chirurgica obbligata (FRX) !!!
- Paziente grande anziano, osteoporotico
- Minore danno chirurgico
- Rapido recupero funzionale

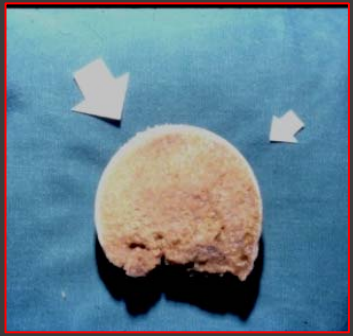
Chirurgia protesica: ANCA

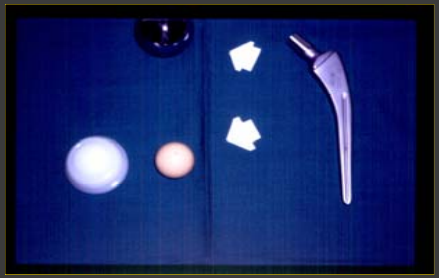
ENDOPROTESI (PROTESI PARZIALE)

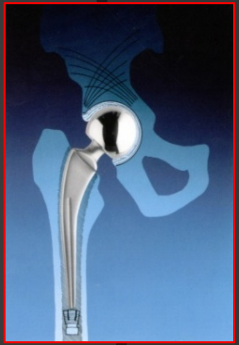
Monoarticolare (un solo giunto articolare)

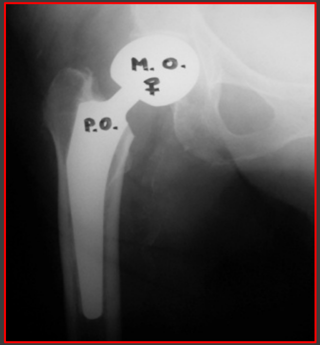
Biarticolare (due snodi articolari)

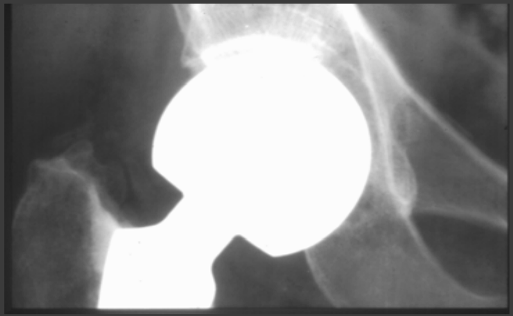


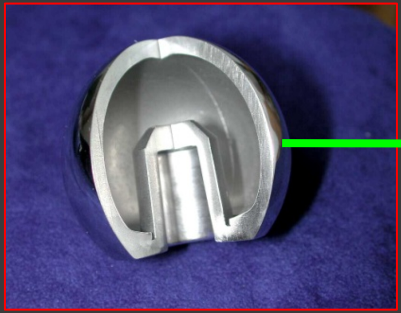












Cupola metallica

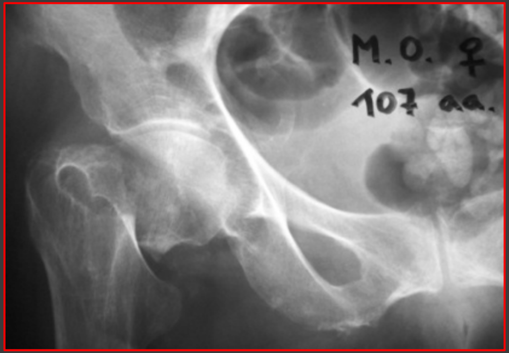
Endoprotesi monoarticolare cementata

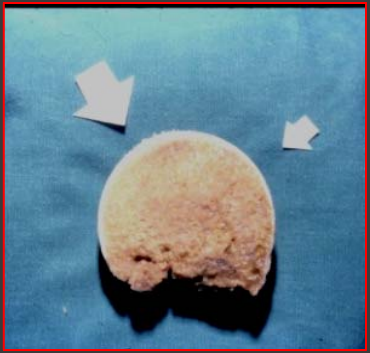
Chirurgia protesica: ANCA

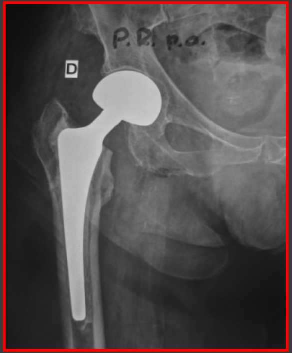
ENDOPROTESI (PROTESI PARZIALE)

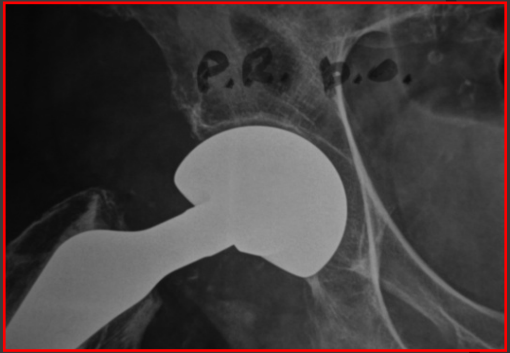
Monoarticolare (un solo giunto articolare)

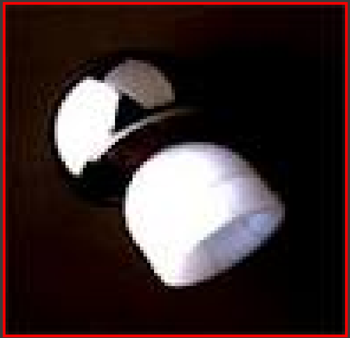
Biarticolare (due snodi articolari)

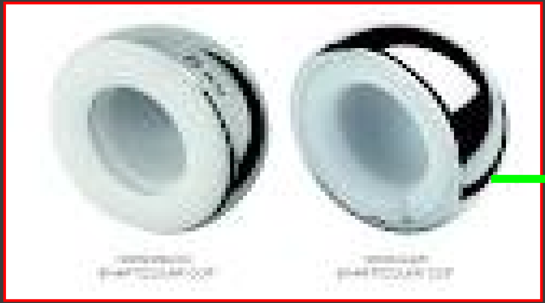












→ **Cupola biarticolare**

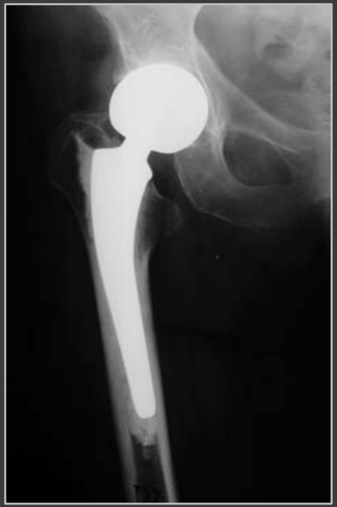
Endoprotesi biarticolare cementata

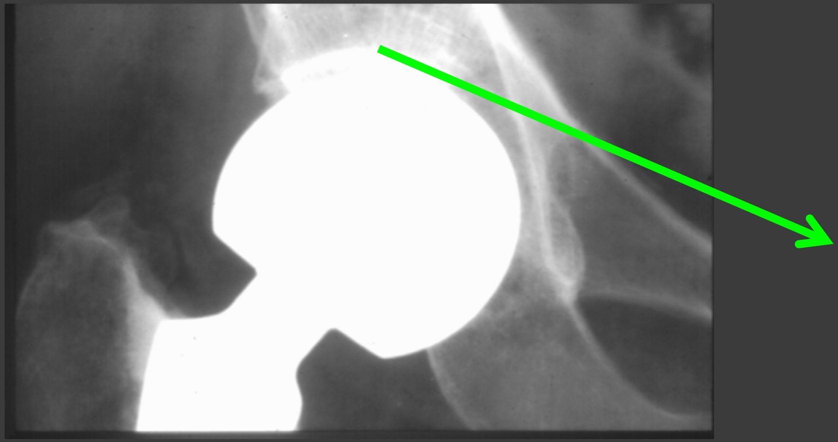
Chirurgia protesica: ANCA

ENDOPROTESI (PROTESI PARZIALE)

Monoarticolare (un solo giunto articolare)

Biarticolare (due snodi articolari)





Impianto, generalmente cementato, che determina, dopo 4-5 anni, la degenerazione dell’acetabolo fisiologico ***(cotiloidite)***

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

- ARTROPROTESI CEMENTATA O IBRIDA
- ARTROPROTESI NON CEMENTATA
- ARTROPROTESI A DOPPIA MOBILITA’
- ARTROPROTESI MIS

Età del paziente (età biologica)

Criteri anamnestici (osteoporosi, AR, OA...)

Criteri radiografici

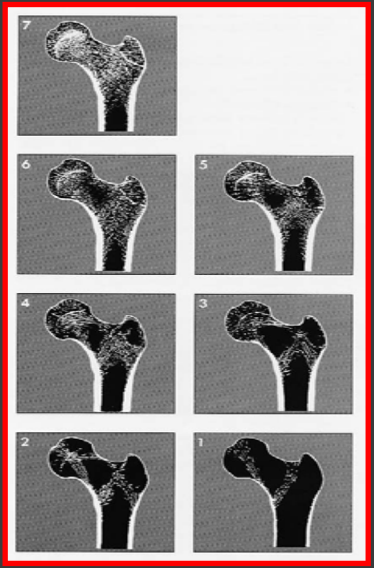
Planning pre-operatorio (!!!)

Chirurgia protesica: ANCA

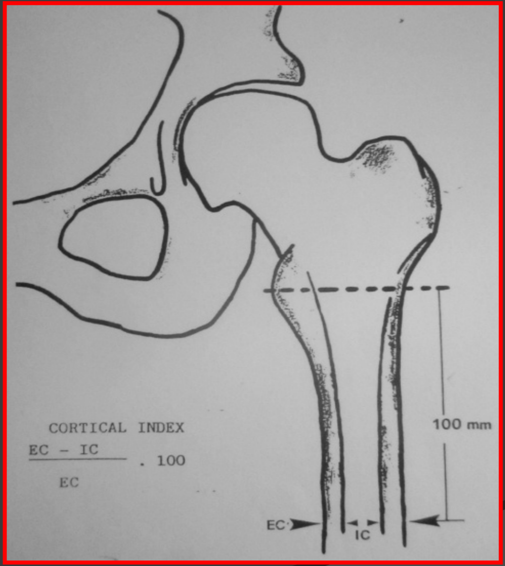
STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA
(qualità dell’osso)



Indice di Singh


CORTICAL INDEX
EC − IC
EC
. 100
100 mm
EC
IC

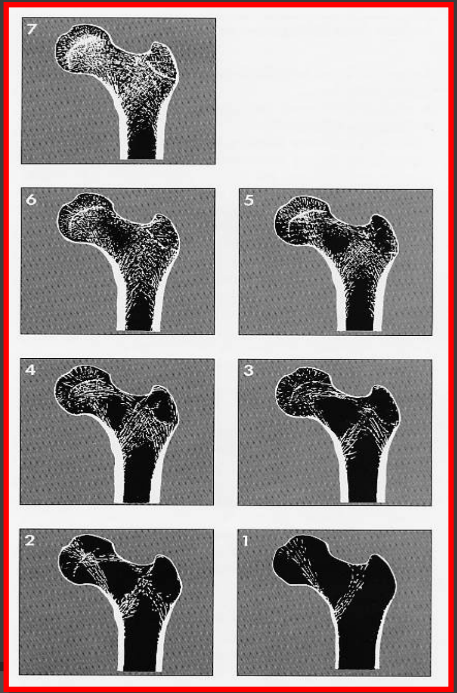
Cortical Index

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA
(qualità dell’osso)



Indice di Singh

Valutazione quantitativa delle travate di osso spongioso meta-epifisarie

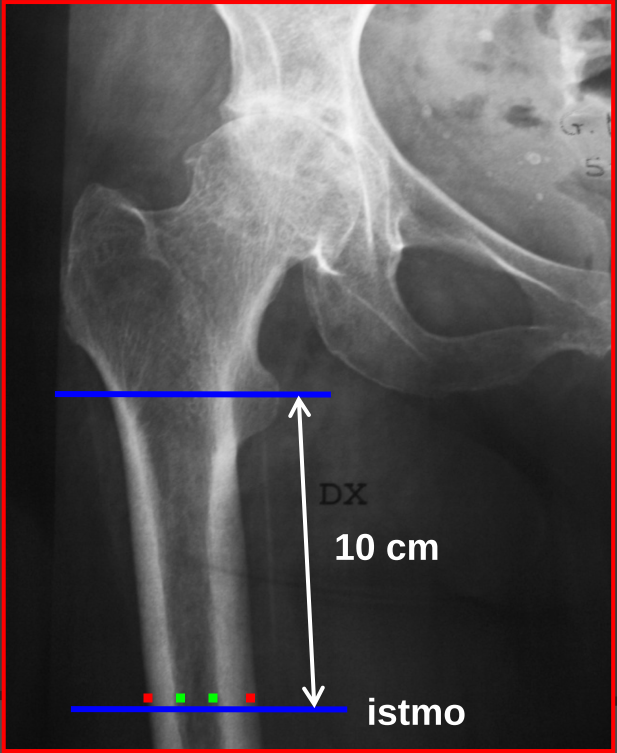
I.S. = 7 : osso normale
I.S. = 1 : osso gravemente porotico

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

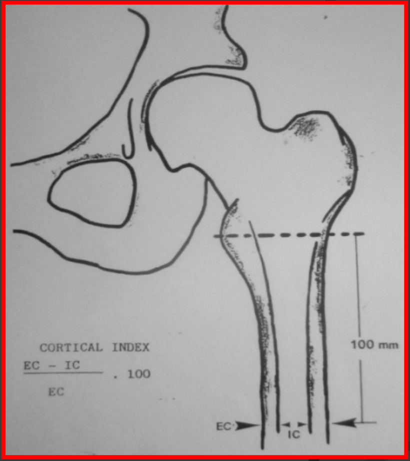
VALUTAZIONE RADIOGRAFICA (qualità dell'osso)


DX
10 cm
istmo

Cortical Index

C.I. = EC – IC / EC 100

Spessore della corticale all'istmo


CORTICAL INDEX
EC – IC
EC
. 100
100 mm
EC
IC

C.I. < 40 corticale sottile: **Dorr tipo C** (femore *cilindrico*)
C.I. 40-60 corticale intermedia: **Dorr tipo B** (fem. *standard*)
C.I. > 60 coricale spessa: **Dorr tipo A** (femore ad *imbuto*)

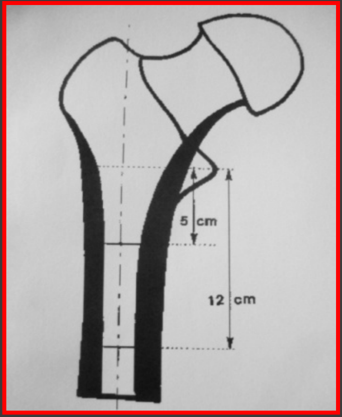
Dorr LD et al.: *Bone 1993; 14 231-42*

Chirurgia protesica: ANCA

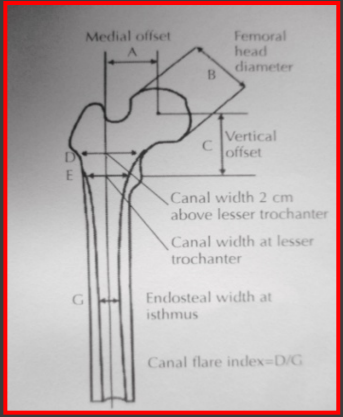
STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

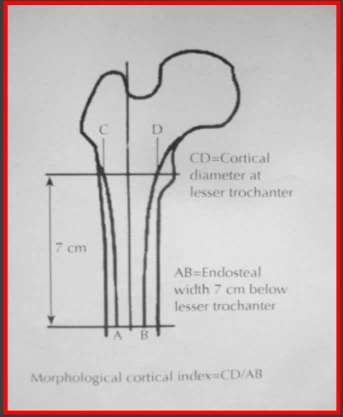
VALUTAZIONE RADIOGRAFICA (morfometria dell’anca)



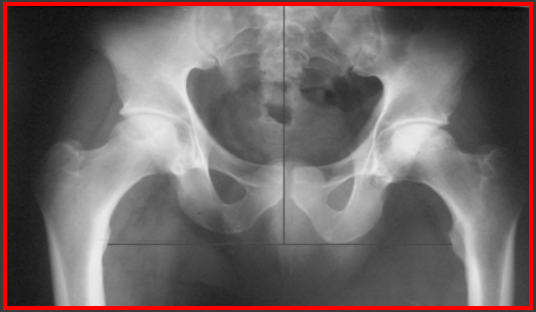
Asse del femore


Medial offset
A
Femoral head diameter
B
C
Vertical offset
D
E
Canal width 2 cm above lesser trochanter
Canal width at lesser trochanter
G
Endosteal width at isthmus
Canal flare index=D/G

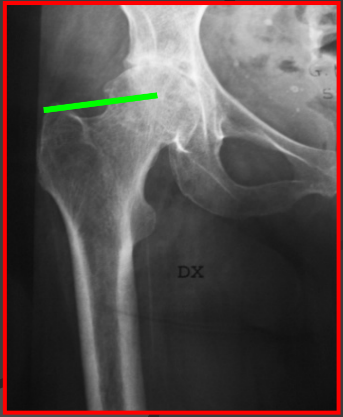
C.F.I.


C
D
CD=Cortical diameter at lesser trochanter
7 cm
AB=Endosteal width 7 cm below lesser trochanter
A
B
Morphological cortical index=CD/AB

I.M.C.



Angoli cervico-epifisari



Off-set

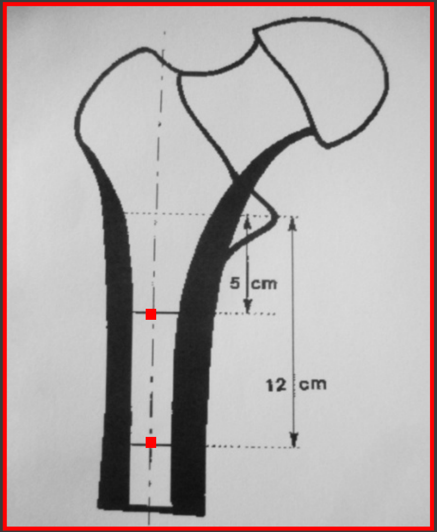
Chirurgia protesica: ANCA

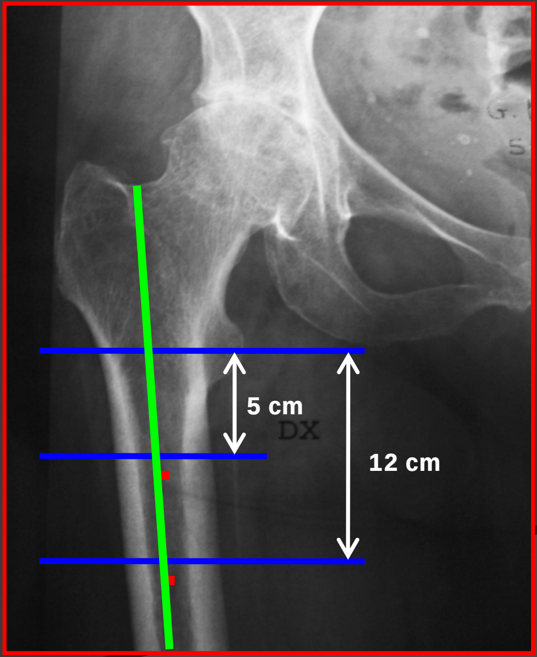
STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA (morfometria dell'anca)

Asse del femore





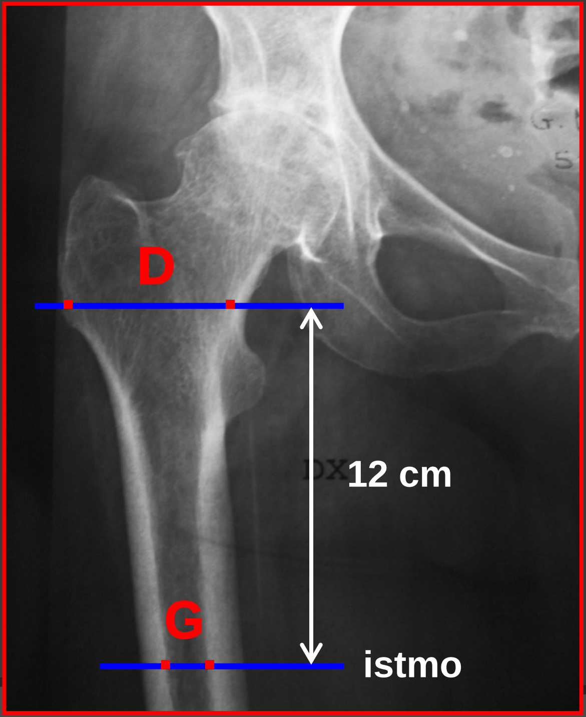
M.H. Fessy et al.: *"anatomical basis for the choice of the femoral implant in the THA " Surg. Radiol. Anat. 1997; 19:283-286*

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

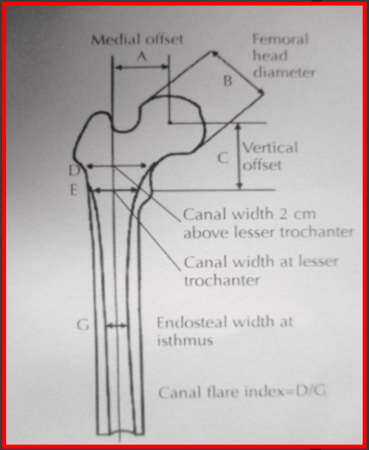
VALUTAZIONE RADIOGRAFICA (morfometria dell’anca)


D
12 cm
G
istmo

Canal Flare Index

C.F.I. = D / G

Morfologia del femore prossimale


Medial offset
A
Femoral head diameter
B
Vertical offset
C
D
E
Canal width 2 cm above lesser trochanter
Canal width at lesser trochanter
G
Endosteal width at isthmus
Canal flare index=D/G

C.F.I. < 3 femore a *“tubo di stufa”*
C.F.I. 3 - 4,5 femore *standard*
C.F.I. > 4,5 femore a *“coppa di champagne”*

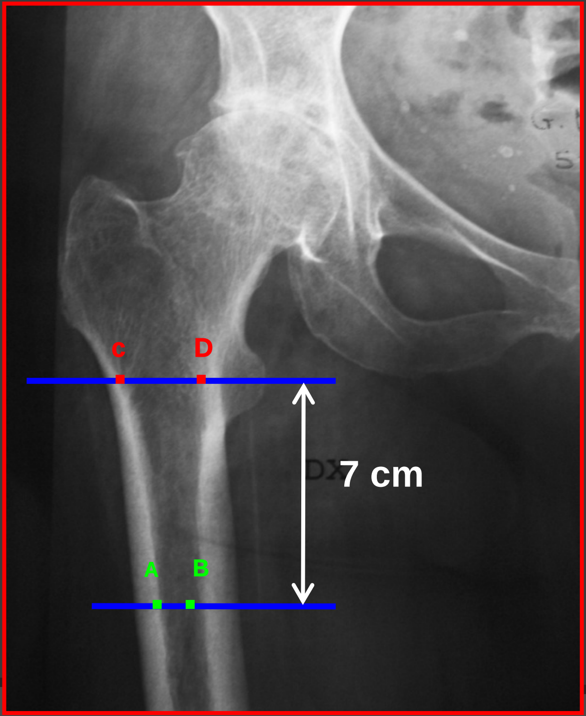
PC. Noble et al.: ***“The anatomic basis of femoral component design“ Clin.Orthop. Relat. Res. 1988; 235:148-165***

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA (morfometria dell'anca)

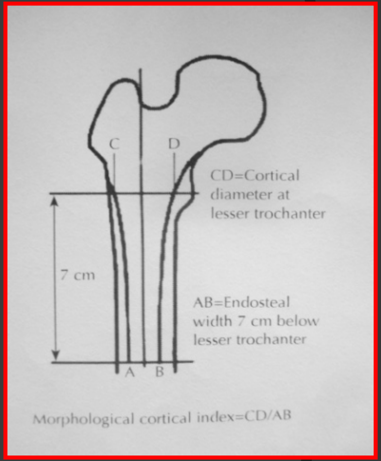


Indice Morfologico Corticale

I.M.C. = CD / AB

Morfologia del canale femorale

I.M.C. < 2,7 femore *"cilindrico"*
I.M.C. > 2,7 femore a *"trombetta"*
femore *"displasico"*


C
D
CD=Cortical diameter at lesser trochanter
7 cm
AB=Endosteal width 7 cm below lesser trochanter
A
B
Morphological cortical index=CD/AB

PC. Noble et al.: *"The anatomic basis of femoral component design" Clin.Orthop. Relat. Res. 1988; 235:148-165*

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA
(morfometria dell’anca)

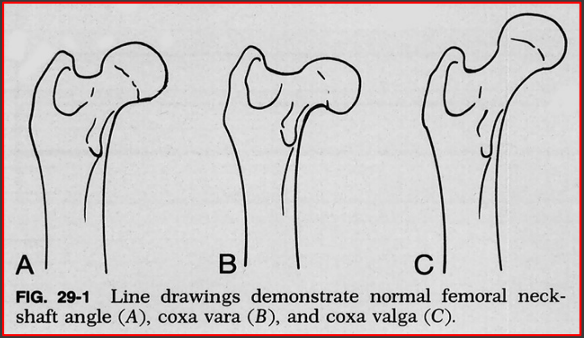
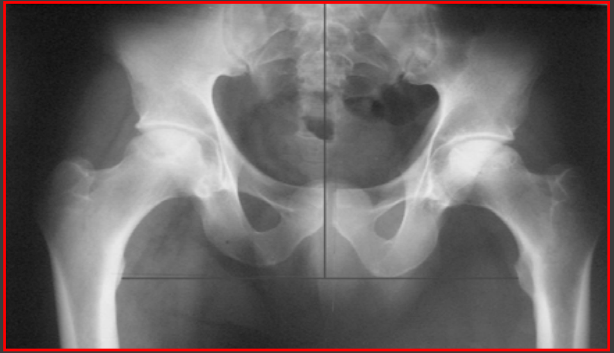
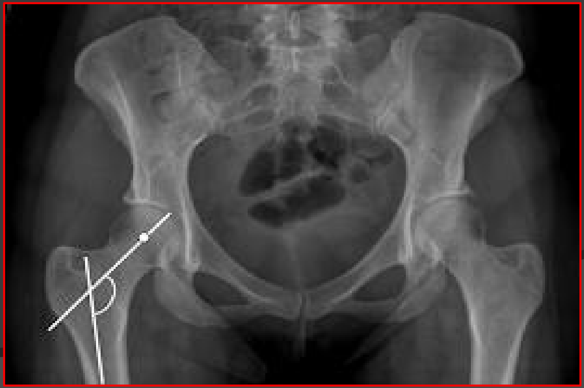
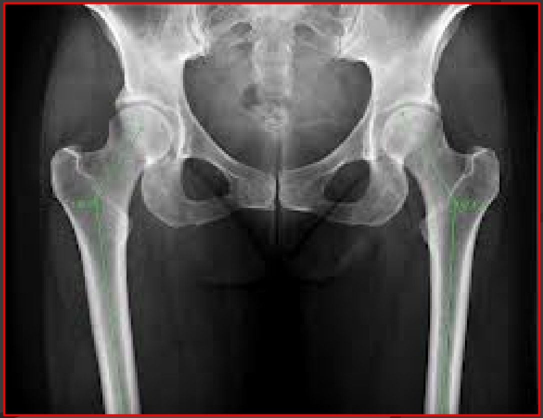


FIG. 29-1 Line drawings demonstrate normal femoral neck-shaft angle (*A*), coxa vara (*B*), and coxa valga (*C*).



Coxa vara





Coxa valga

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA
(morfometria dell'anca)

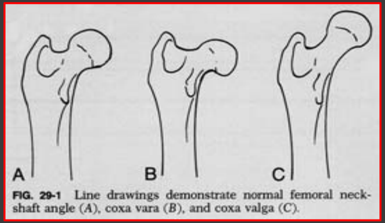
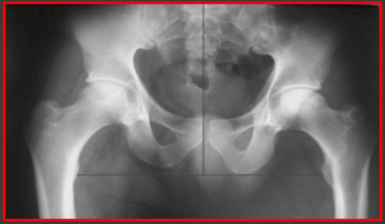
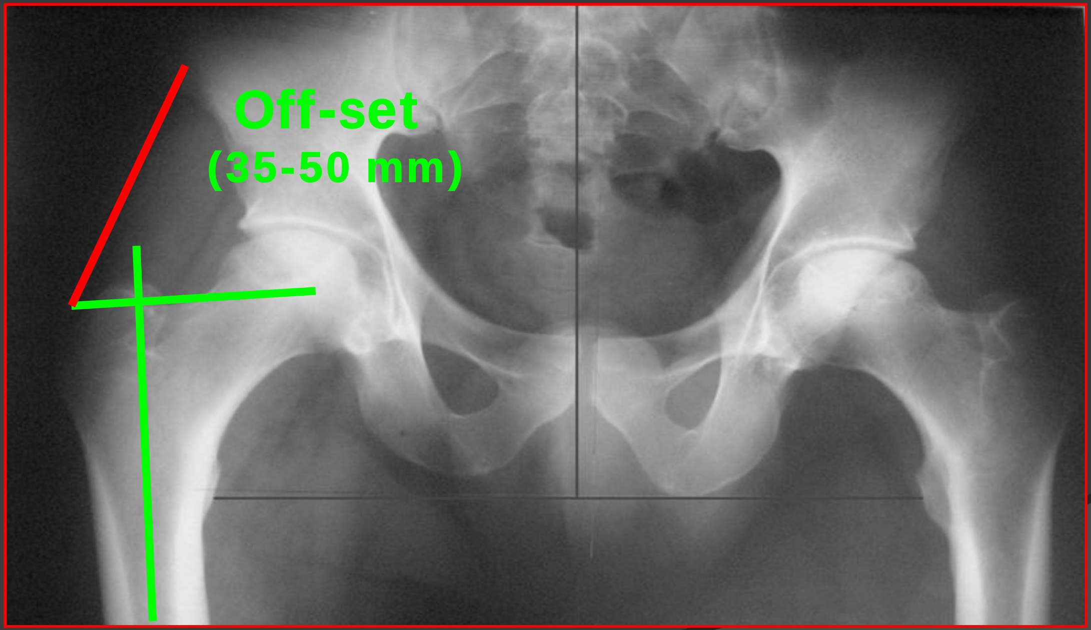


FIG. 29-1 Line drawings demonstrate normal femoral neck-shaft angle (*A*), coxa vara (*B*), and coxa valga (*C*).





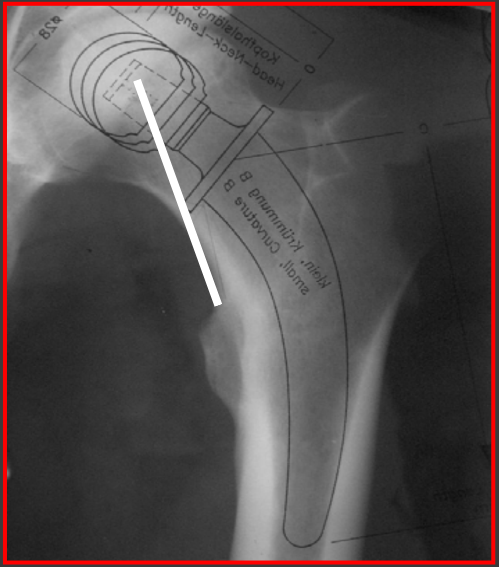
Lunghezza del braccio di leva dei MM.abduttori

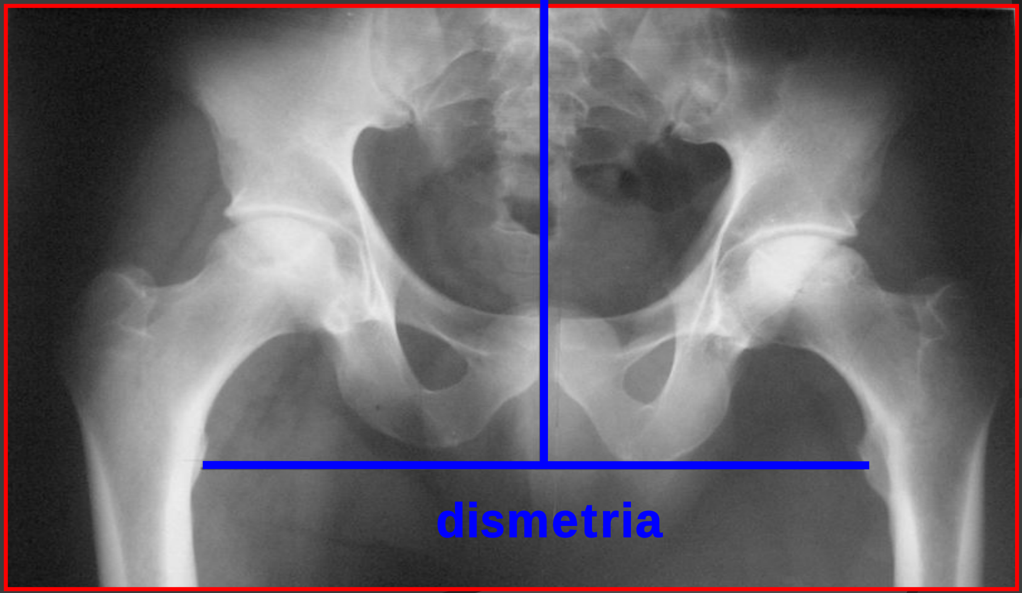
Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA
(planning pre-operatorio)





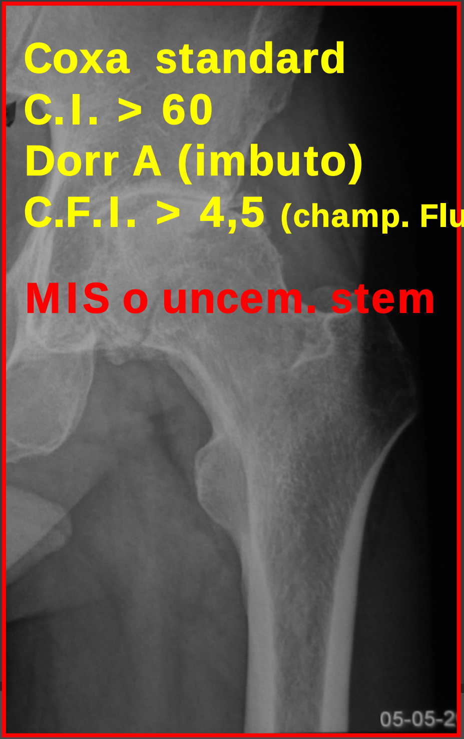
Distanza COR – piccolo trocantere

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

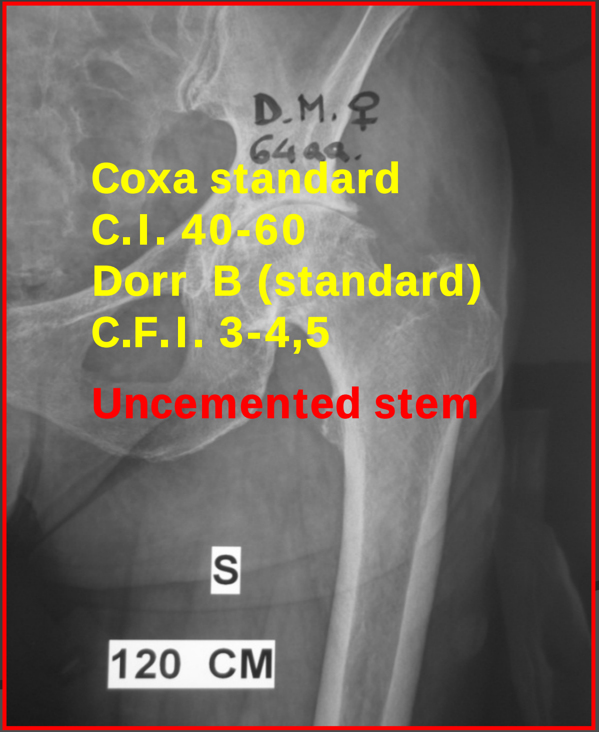
QUALE ARTROPROTESI IMPIANTARE ?

VALUTAZIONE RADIOGRAFICA



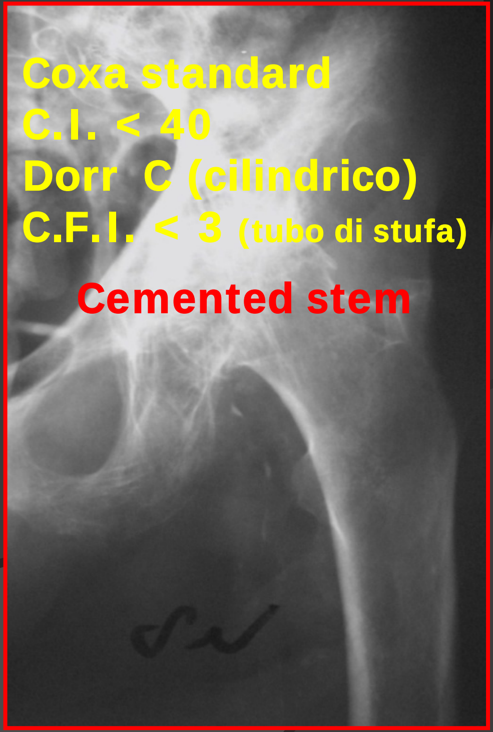
Coxa standard
C.I. > 60
Dorr A (imbuto)
C.F.I. > 4,5 (champ. Flute)

MIS o uncem. stem



Coxa standard
C.I. 40-60
Dorr B (standard)
C.F.I. 3-4,5

Uncemented stem



Coxa standard
C.I. < 40
Dorr C (cilindrico)
C.F.I. < 3 (tubo di stufa)

Cemented stem

Chirurgia protesica: ANCA

Controindicazione all'impianto protesico

- Infezione articolare

- Età giovanile
- Obesità
- Malattie psicoorganiche concomitanti

controindicazioni relative

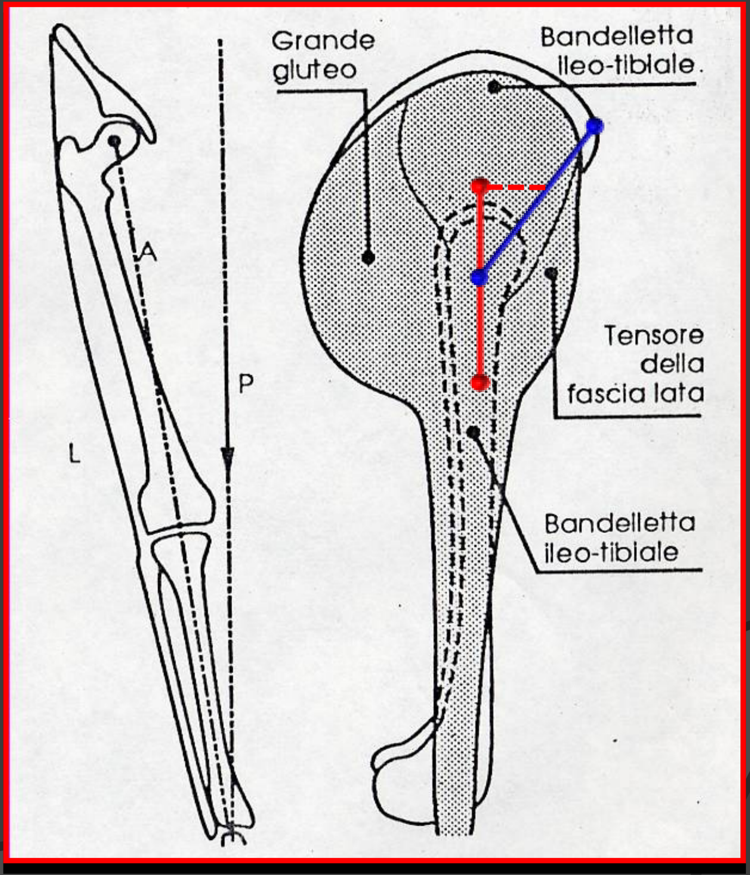
Chirurgia protesica: ANCA

La **via di accesso** chirurgica DEVE essere rispettosa dei tessuti molli **(TSS)**

- Accesso antero laterale (Watson-Jones)
- Accesso anteriore (Smith-Petersen)
- Accesso Posteriore (Gibson-Moore)
- Accesso laterale diretto (Hardinge)

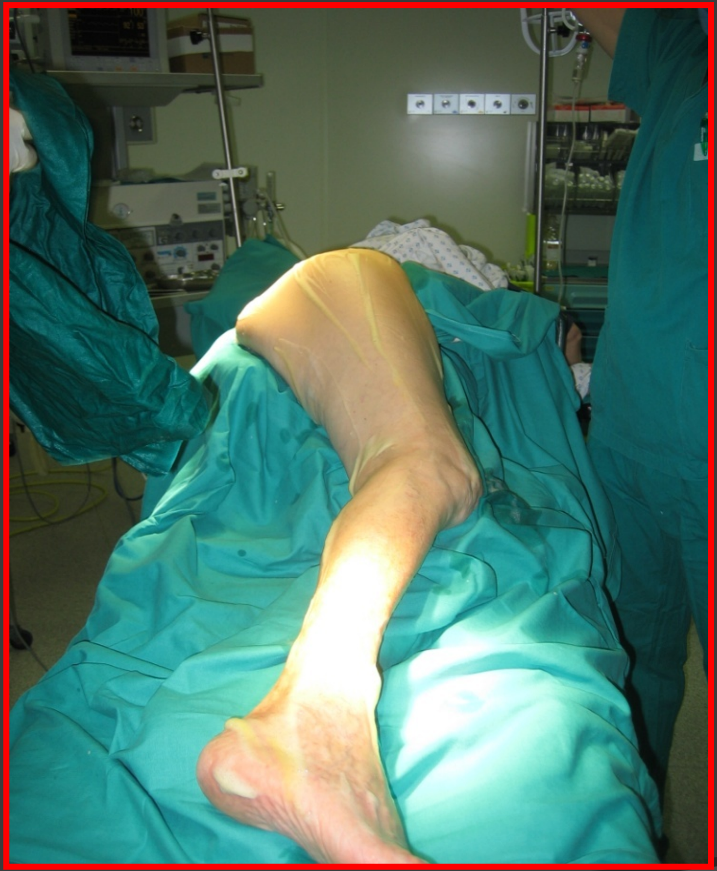
Chirurgia protesica: ANCA

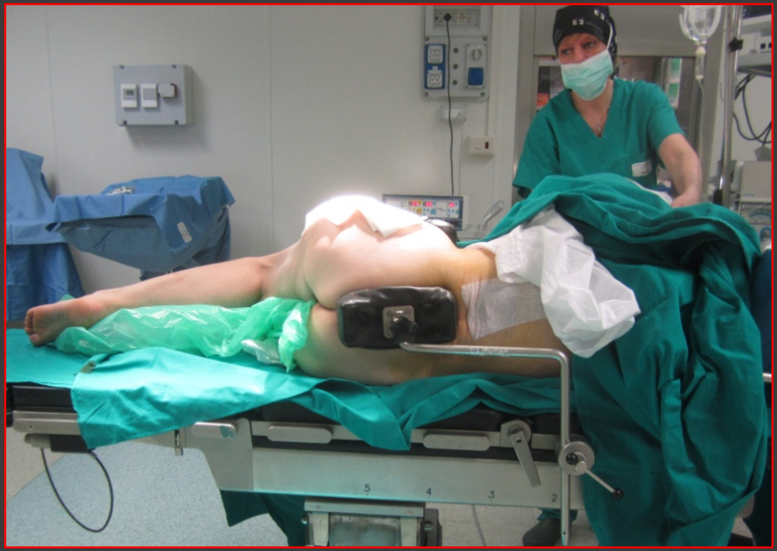
Accesso laterale diretto (Hardinge)

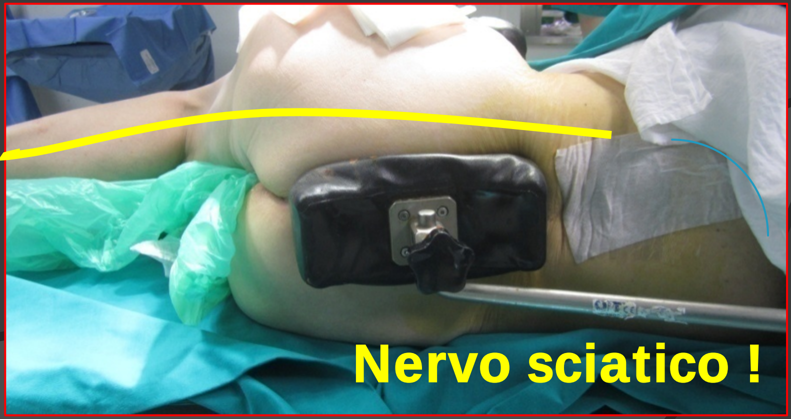

Grande gluteo
Bandelletta ileo-tiblale.
A
P
L
Tensore della fascia lata
Bandelletta ileo-tiblale

Chirurgia protesica: ANCA

Accesso laterale diretto (Hardinge)






Nervo sciatico !

Chirurgia protesica: ANCA

STRATEGIA CHIRURGICA

Età del paziente (età biologica)

Criteri anamnestici (osteoporosi, AR, OA…)

Criteri radiografici

Planning pre-operatorio (!!!)

ospedale
autostrada
A 3
ospedale
A 3
autostrada

Chirurgia protesica: ANCA

Strategia chirurgica – Protesi cementate

- **Pazienti > 85 aa**
- **Alterazioni qualitative e/o quantitative dell'osso**
  (AR, osteoporosi…)
- **C.I. < 40**
- ***Planning pre-operatorio (!!!)***

Chirurgia protesica: ANCA

Strategia chirurgica – Protesi non cementate standard

- **Pazienti 70-85 aa**
- **Buona qualità dell'osso**
- **C.I. 40-60**
- ***Planning pre-operatorio (!!!)***

Chirurgia protesica: ANCA

Strategia chirurgica – Protesi non cementate a doppia mobilità

- Pazienti 80-85 aa
- Discreta qualità dell'osso
- C.I. 40-60
- *Planning pre-operatorio (!!!)*

Chirurgia protesica: ANCA

Strategia chirurgica – Protesi non cementate MIS

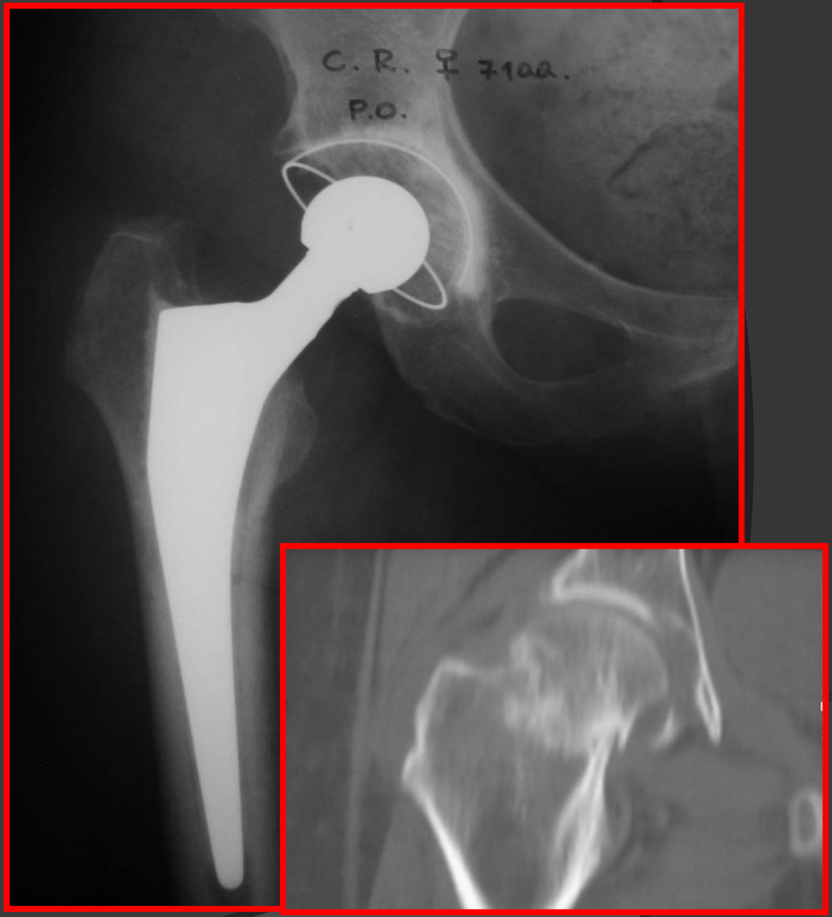
- **Pazienti < 70 aa**
- **Buona qualità dell'osso**
- **C.I. > 60**
- ***Planning pre-operatorio (!!!)***

Chirurgia protesica: ANCA

Strategia chirurgica – Protesi cementate

Vantaggi

- Stabilità immediata (PMMA)
- Uniforme distribuzione stress sull’osso
- Carico precoce
- Costo economico contenuto

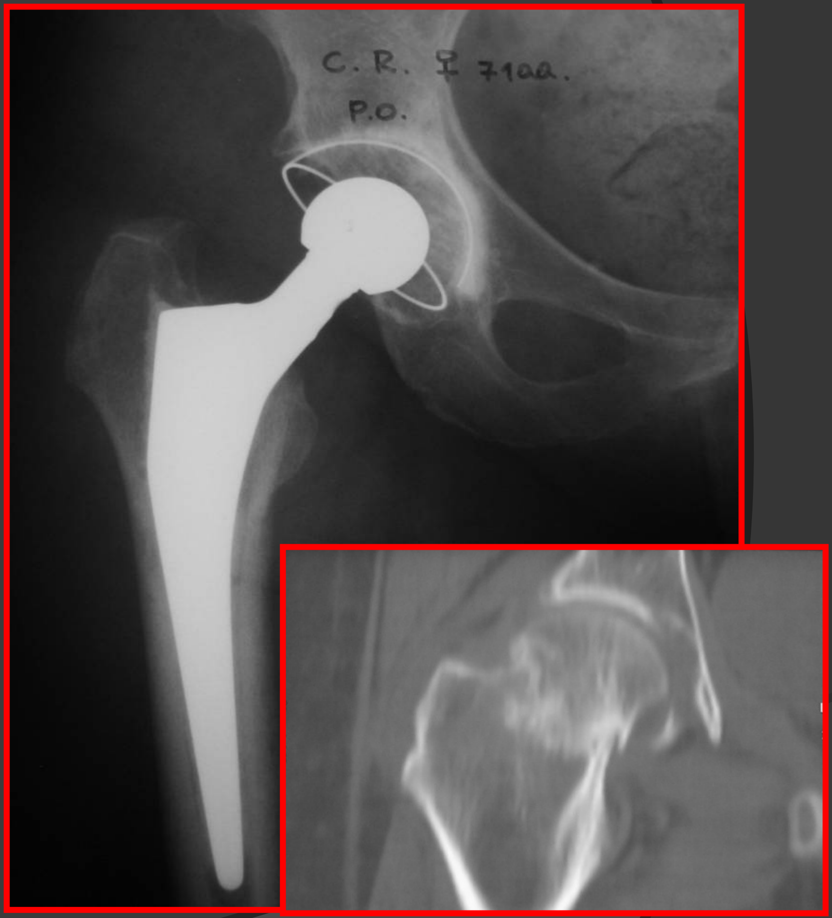


Chirurgia protesica: ANCA

Strategia chirurgica – Protesi cementate

Svantaggi

- **Tecnica di cementazione**
- **Invecchiamento del cemento**
  (perdita resistenza meccanica,
  frammentazione del cemento)
- **Alterazioni all'interfaccia osso-cemento-protesi**
- **Complicanze tecniche nelle revisioni**



Chirurgia protesica: ANCA

Strategia chirurgica – Protesi non cementate

Vantaggi

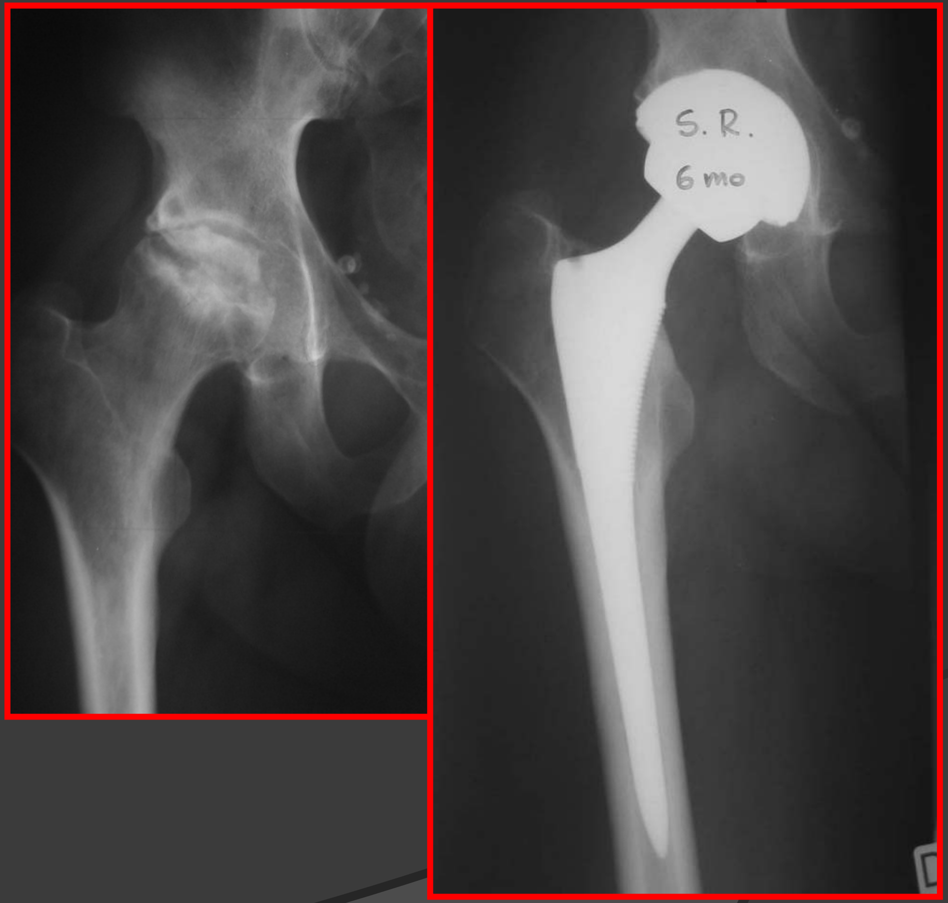
- Minor lussabilità (Doppia Mobilità)
- **Stabilità immediata**

  (press fit e fit and fill)
- **Impianto più "fisiologico"**

  (bone ingrowth)

⇩

- **Integrazione impianto osso ospite nel tempo** (bone remodelling)

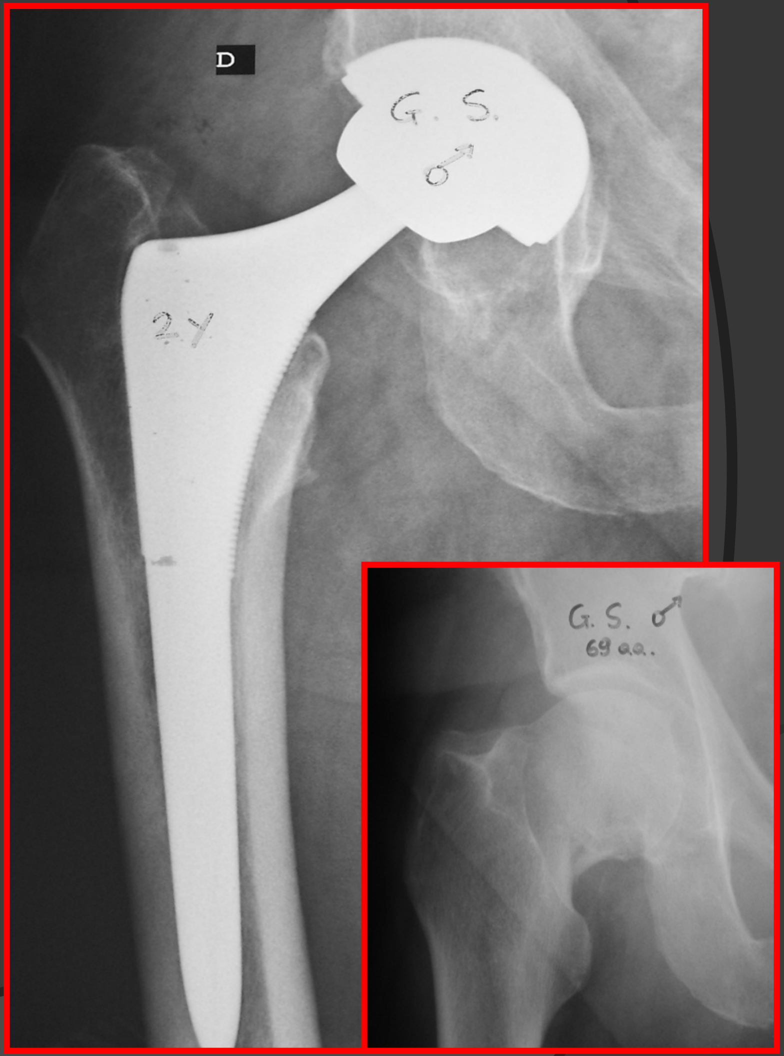


Chirurgia protesica: ANCA

Strategia chirurgica – Protesi non cementate

Svantaggi

- Posizionamento cotile difficoltoso (doppia Mobilità)
- Tecnica chirurgica rigorosa
- Possibilità di risposta non ottimale dell'osso (dolore e scollamento precoce)
- Costo economico elevato (design e tecnologia dei biomateriali)



Chirurgia protesica: ANCA

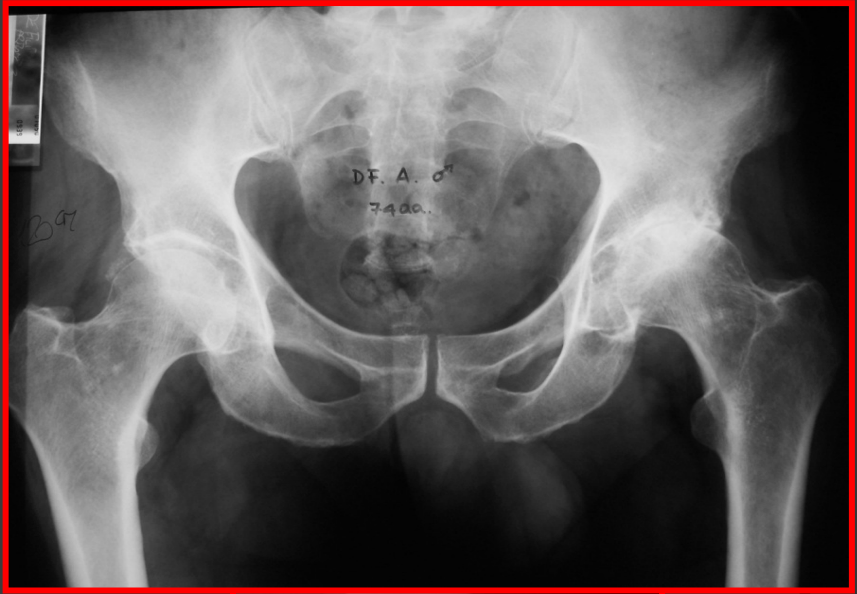
Strategia chirurgica – Protesi non cementate MIS

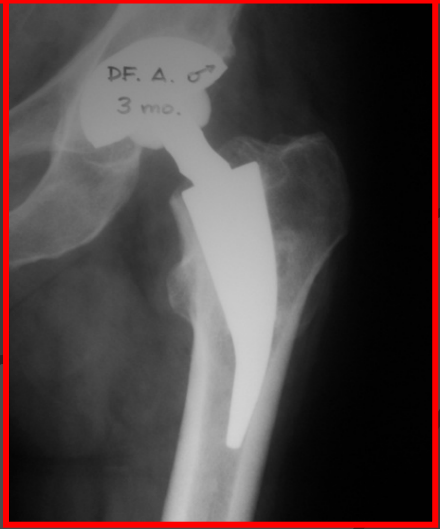
Vantaggi

- **Risparmio bone stock**

  (fit without fill)

- **Maggior patrimonio osseo in caso di revisione**





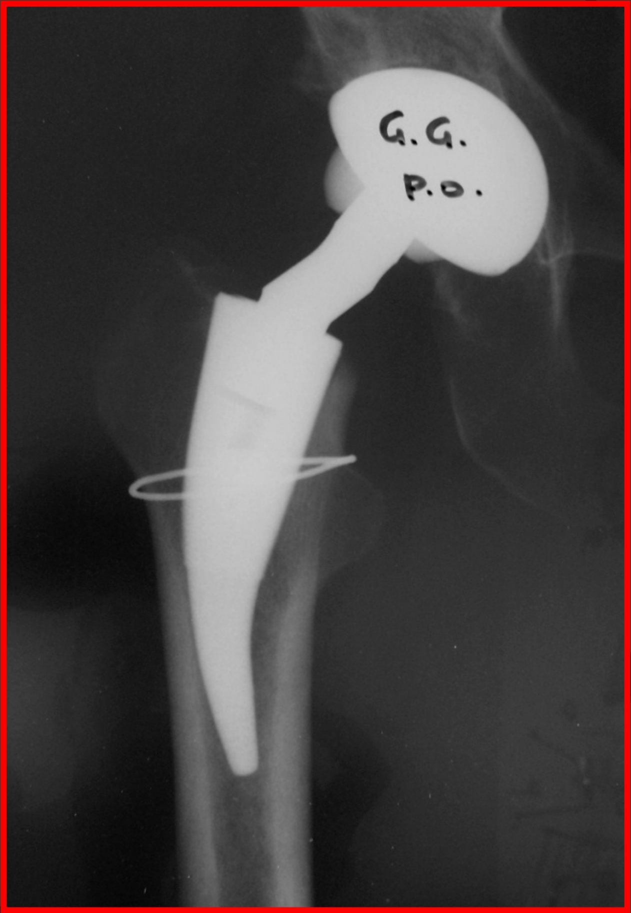
Chirurgia protesica: ANCA

Strategia chirurgica – Protesi non cementate MIS

Svantaggi

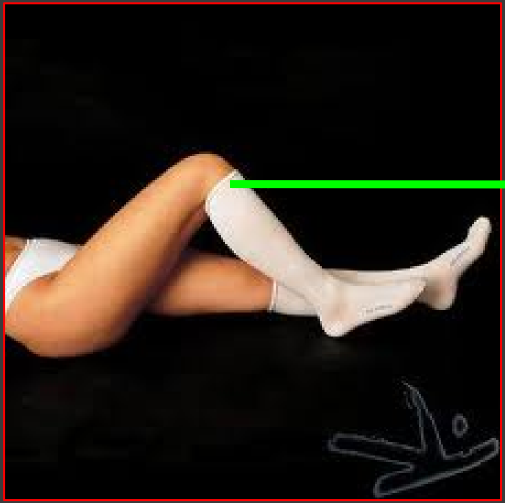
- Tecnica chirurgica complessa
- Maggior rischio di frattura intraoperatoria
- Costo economico più elevato

(design e tecnologia dei biomateriali)



Chirurgia protesica: ANCA

Nel post-operatorio…..



1) Controllare la motilità del piede del lato operato
2) Mantenere gli arti divaricati onde evitare il rischio di lussazione
3) Controllare il posizionamento del gambaletto o monocollant

… Dal giorno successivo inizio di FKT

Chirurgia protesica: ANCA

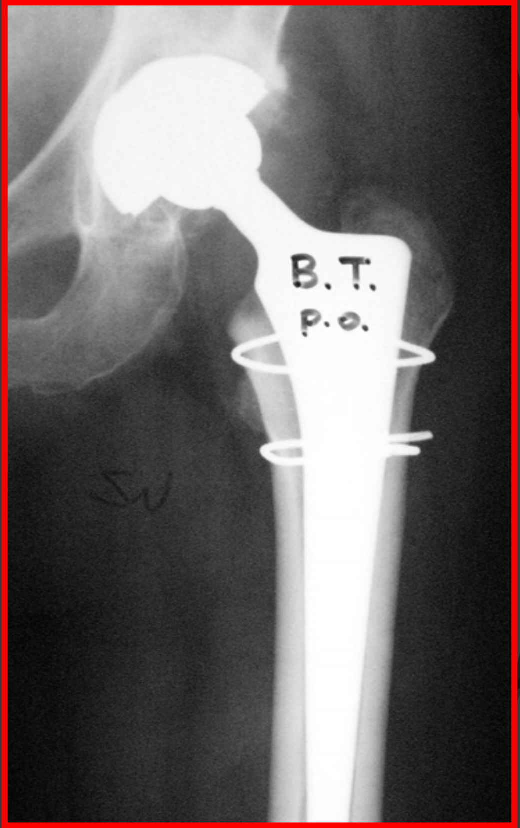
Complicanze

- Frattura intraoperatoria
- Lussazioni
- Infezioni
- Frattura periprotesica
- Mobilizzazione asettica
- Lesione dello SPE
- Dismetria

Chirurgia protesica: ANCA

Complicanze

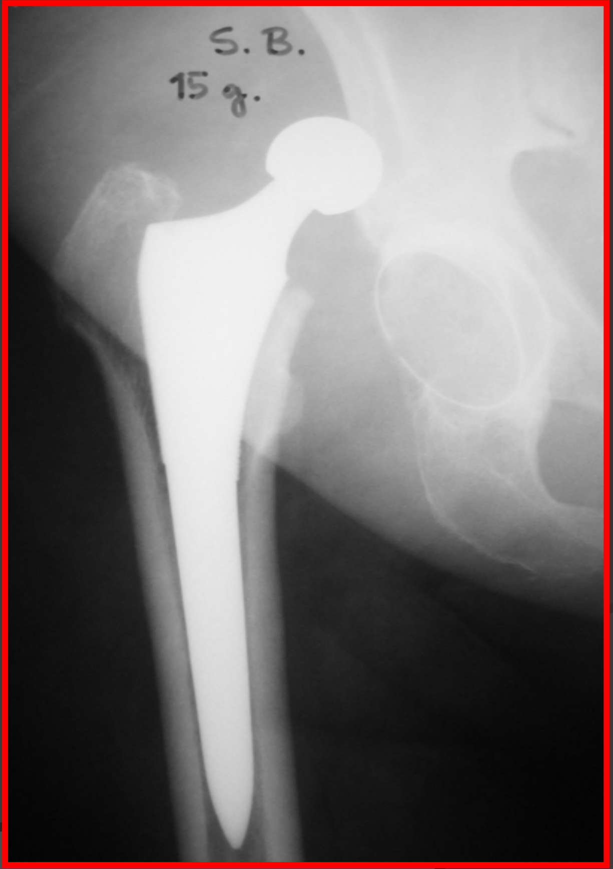
- Frattura intraoperatoria
- Lussazioni
- Infezioni
- Frattura periprotesica
- Mobilizzazione asettica



Chirurgia protesica: ANCA

Complicanze

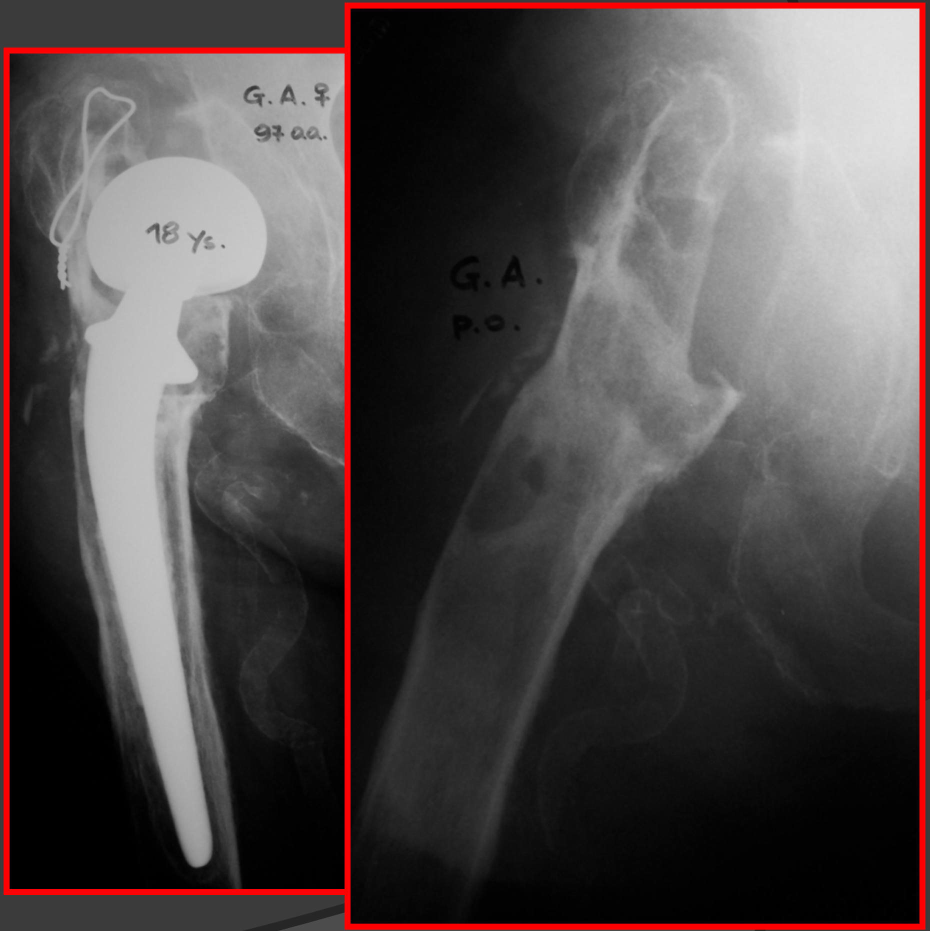
- Frattura intraoperatoria
- Lussazioni
- Infezioni
- Frattura periprotesica
- Mobilizzazione asettica



Chirurgia protesica: ANCA

Complicanze

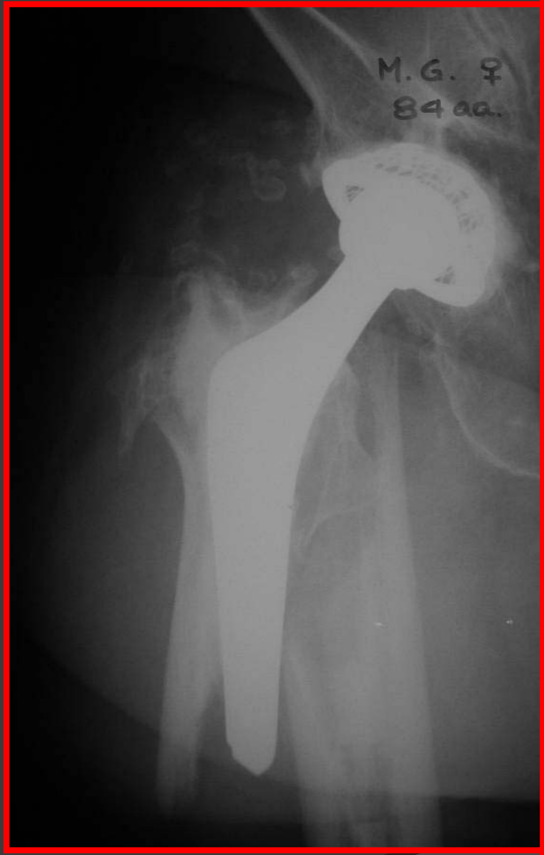
- Frattura intraoperatoria
- Lussazioni
- Infezioni
- Frattura periprotesica
- Mobilizzazione asettica

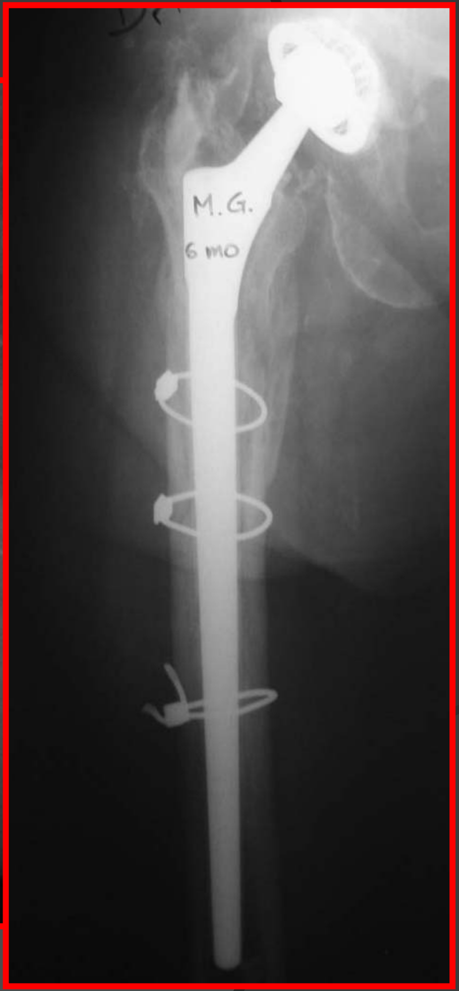

G. A. ♀
97 aa.
18 Ys.
G. A.
P.O.

Chirurgia protesica: ANCA

Complicanze

- Frattura intraoperatoria
- Lussazioni
- Infezioni
- Frattura periprotesica
- Mobilizzazione asettica

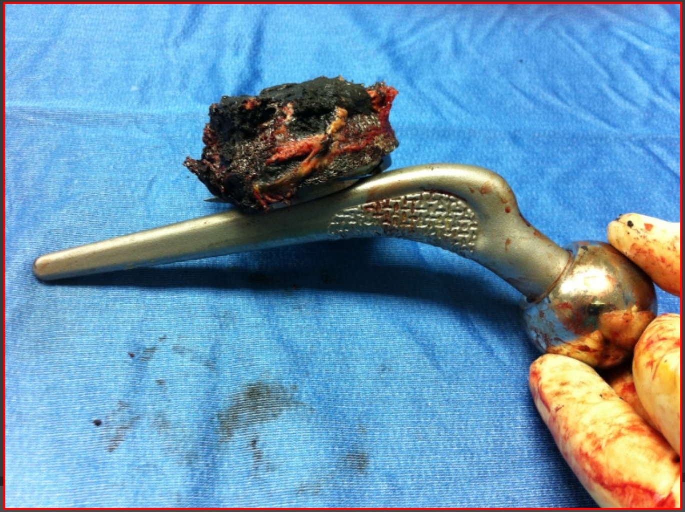


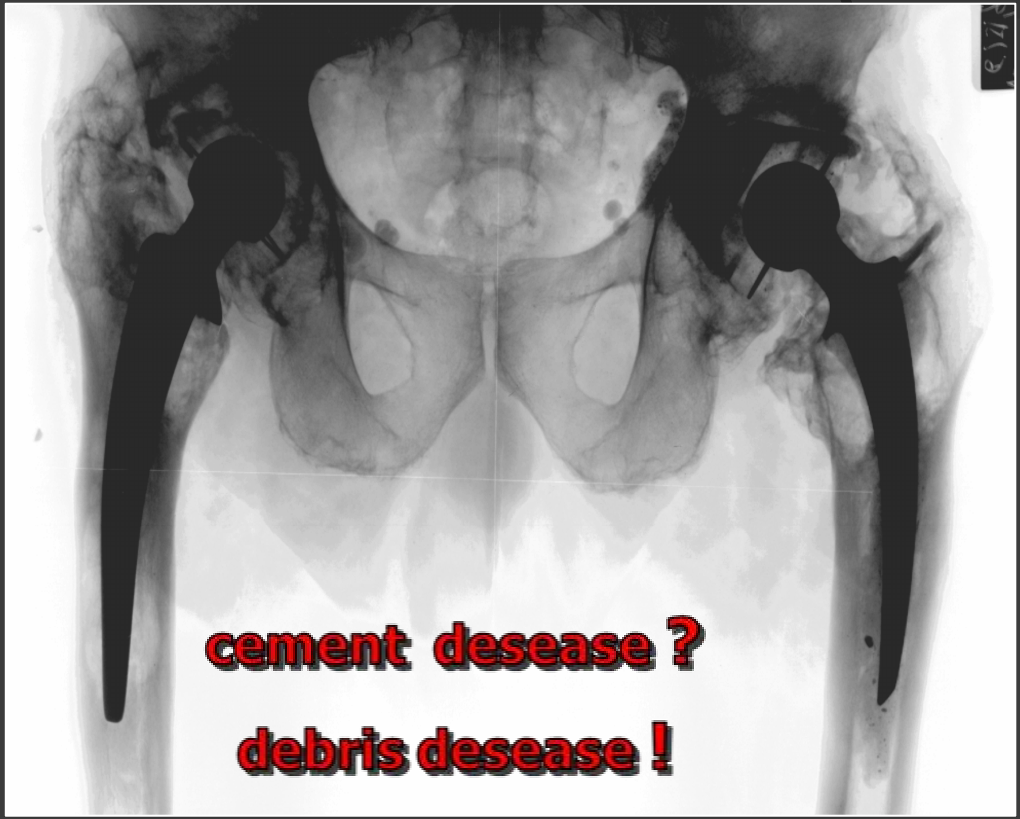


Chirurgia protesica: ANCA

Complicanze

- **Frattura intraoperatoria**
- **Lussazioni**
- **Infezioni**
- **Frattura periprotesica**
- **Mobilizzazione asettica**





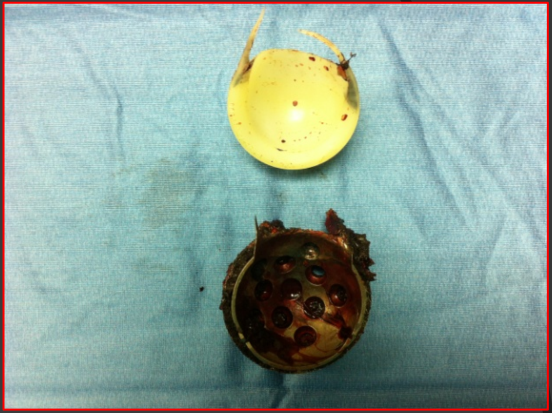
cement desease ?

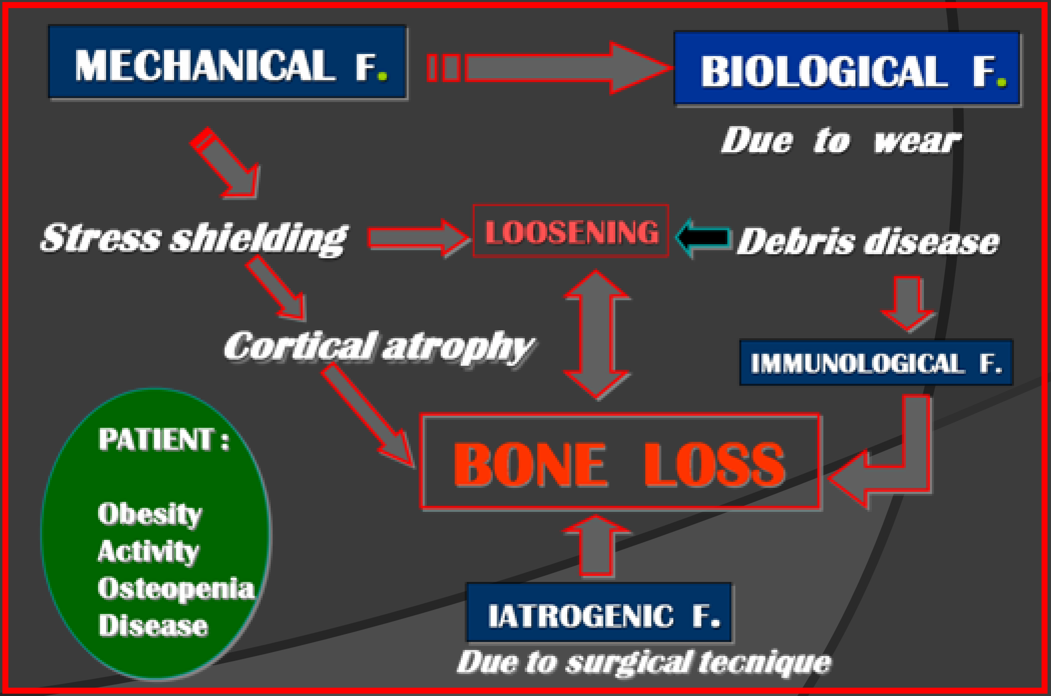
debris desease !

Chirurgia protesica: ANCA

Complicanze

- Frattura intraoperatoria
- Lussazioni
- Infezioni
- Frattura periprotesica
- **Mobilizzazione asettica**





MECHANICAL F.

BIOLOGICAL F.

Due to wear

Stress shielding

LOOSENING

Debris disease

Cortical atrophy

IMMUNOLOGICAL F.

PATIENT :

Obesity
Activity
Osteopenia
Disease

BONE LOSS

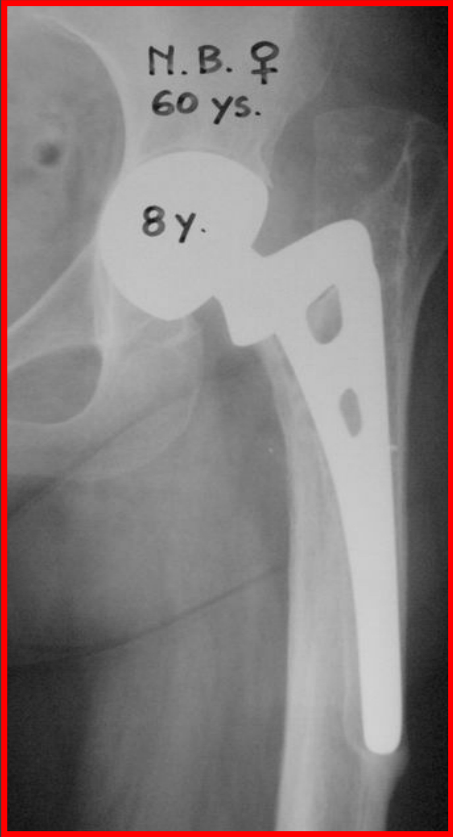
IATROGENIC F.

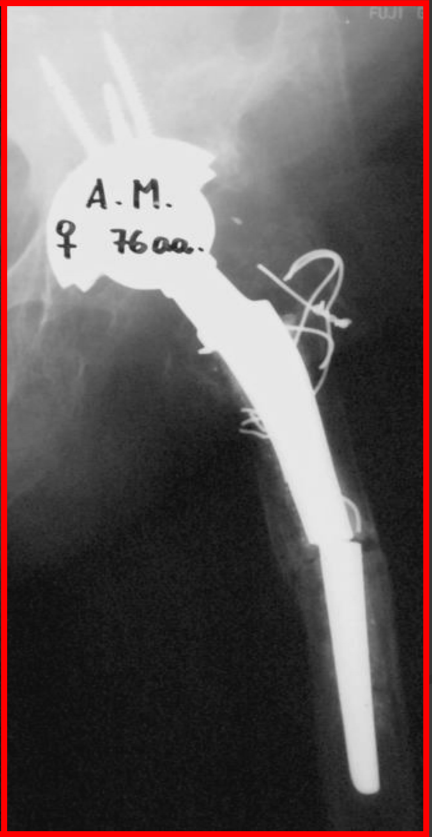
Due to surgical tecnique

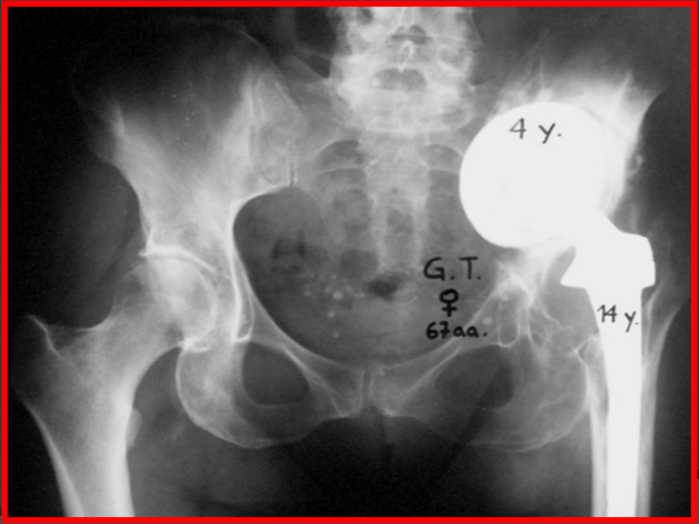
Chirurgia protesica: ANCA

Complicanze

- **Frattura intraoperatoria**
- **Lussazioni**
- **Infezioni**
- **Frattura periprotesica**
- **Mobilizzazione asettica**

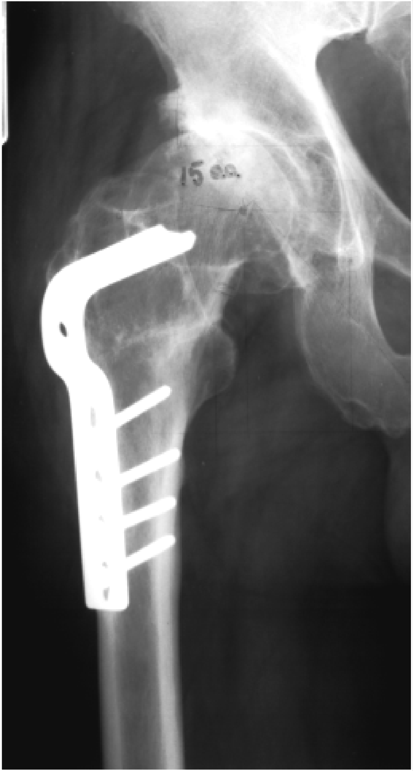





4 y.
G.T.
♀
67aa.
14 y.

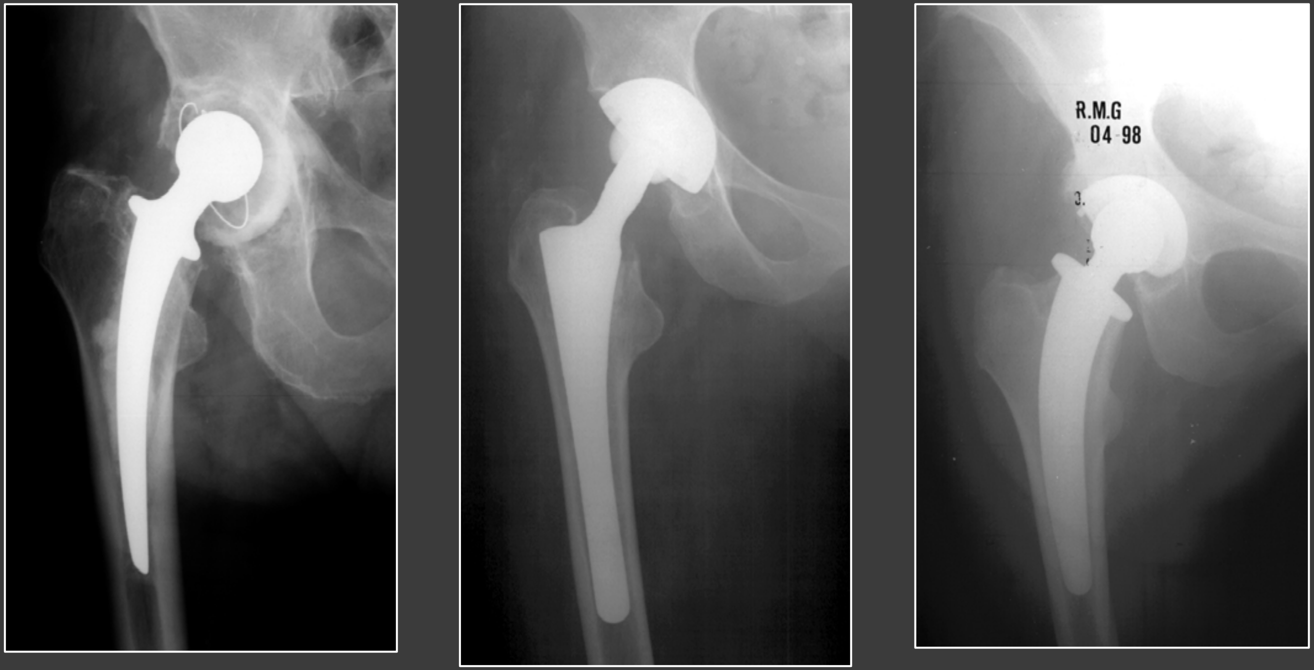
Chirurgia protesica: CONCLUSIONI

Tecnica chirurgica rigorosa che consente di raggiungere una "nuova normalità" nelle gravi degenerazioni articolari



Chirurgia protesica: CONCLUSIONI

L'evoluzione tecnologica consente una chirurgia sempre più "mini invasiva"



... ma è una chirurgia sostitutiva !

Chirurgia protesica: CONCLUSIONI

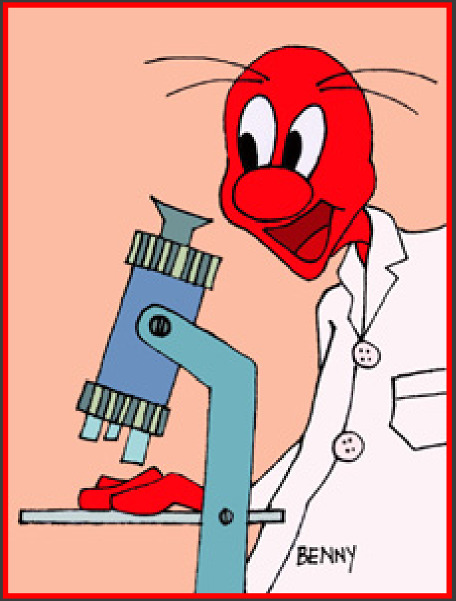
NAVIGATORI
AESCULAP
OrthoPilot
iON
IntraOperative Navigation System
Medtronic

ROBOT
CASPAR

...?...

Chirurgia protesica: CONCLUSIONI

Il Futuro ?



RICOSTRUIRE LA CARTILAGINE

ROOM
3
Des Peres
Hospital

GRAZIE