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EARLY EXPERIENCE WITH MSA™ NECK SPARING STEM VIA ANTEROLATERAL APPROACH

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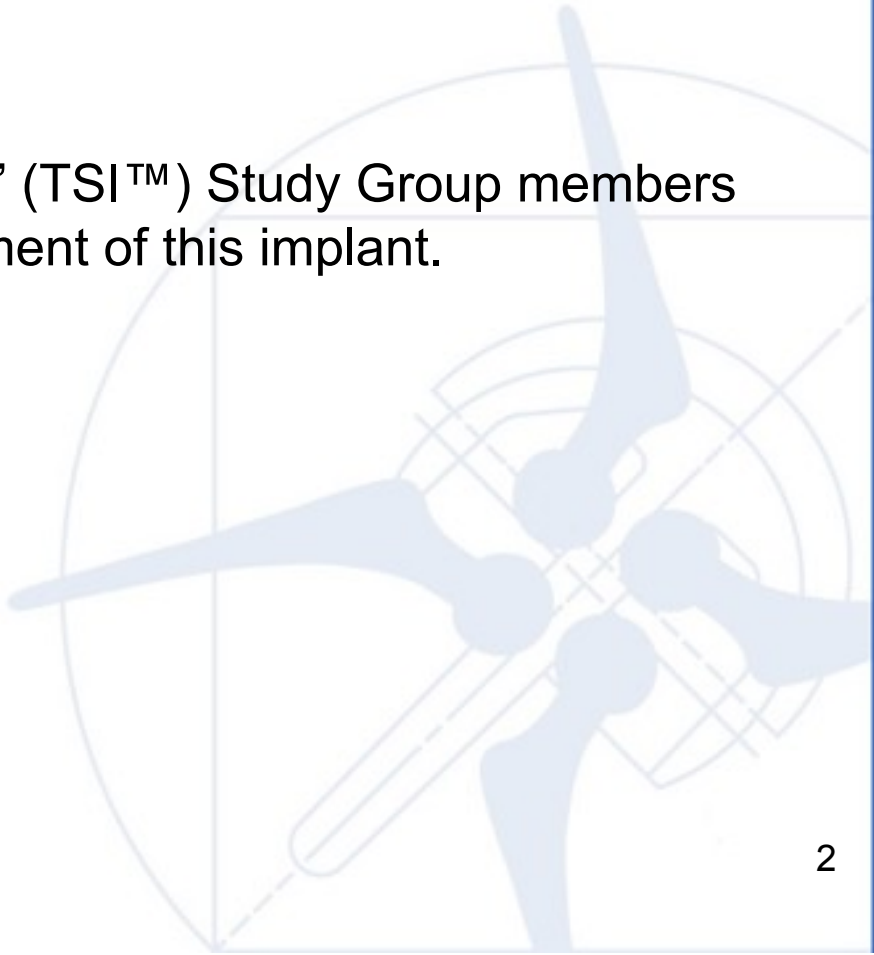
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van der Rijt
ORTHOPAEDICS

ACKNOWLEDGEMENT & FINANCIAL DISCLOSURES

1. The senior author Associate Professor A J van der Rijt holds shares in Global Orthopaedic Technology (GOT), the manufacturer of the MSA™ implant.
2. Many “Tissue Sparing Implant™” (TSI™) Study Group members have contributed to the development of this implant.



MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

Design - Curved, short, neck loading femoral stem.

Proximal

- Trapezoidal, taper cross-section
- Proximal titanium/HA porous coating zone in femoral neck
- Torsional stability further enhanced by lateral “T” back
- **Proximal conical flare transfers compressive loads to medial calcar**

Proximal (Cremascoli taper)

1. Modular neck + head
 - Distal polished implant

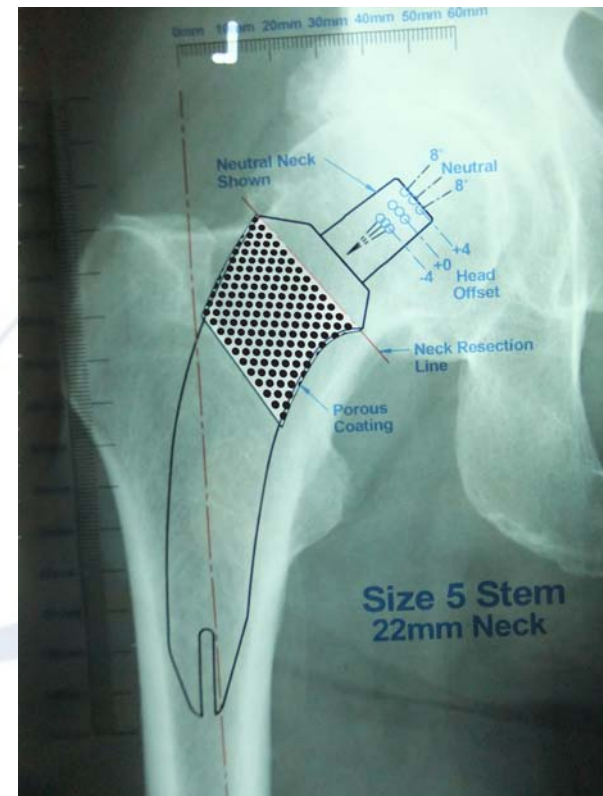


MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

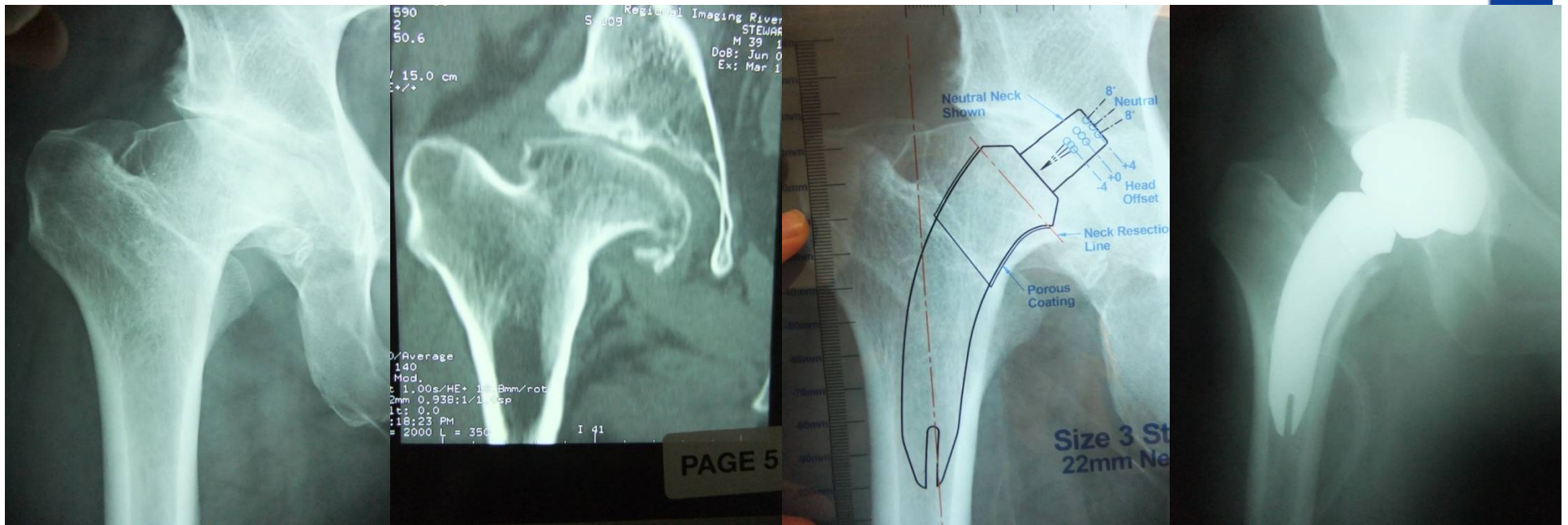
Philosophy

Primary femoral implant fixation in the femoral neck results in:

- Load transfer to the femoral neck and proximal femur in torsion, axial and bending moments
- Sparing/preservation of bone and soft tissue
- Preserves proximal biomechanics, bone function (Wolff's Law) and ultimately bone stock
- Femoral neck retention reduces torsional and bending moments (forces) at the bone stem interface.

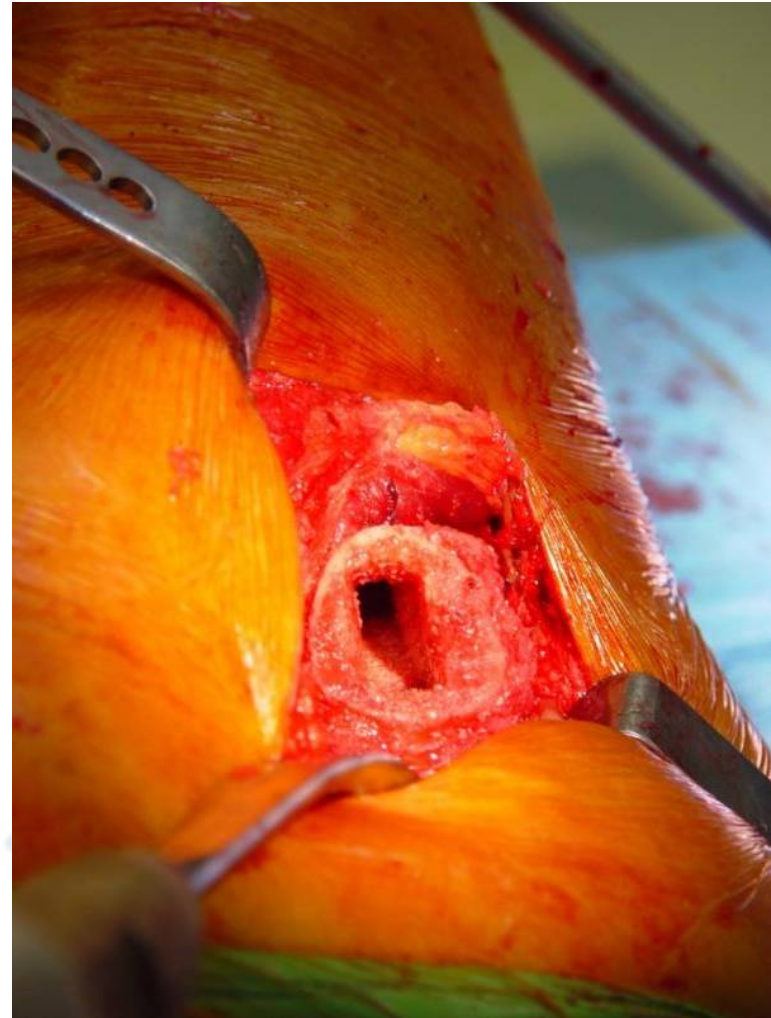
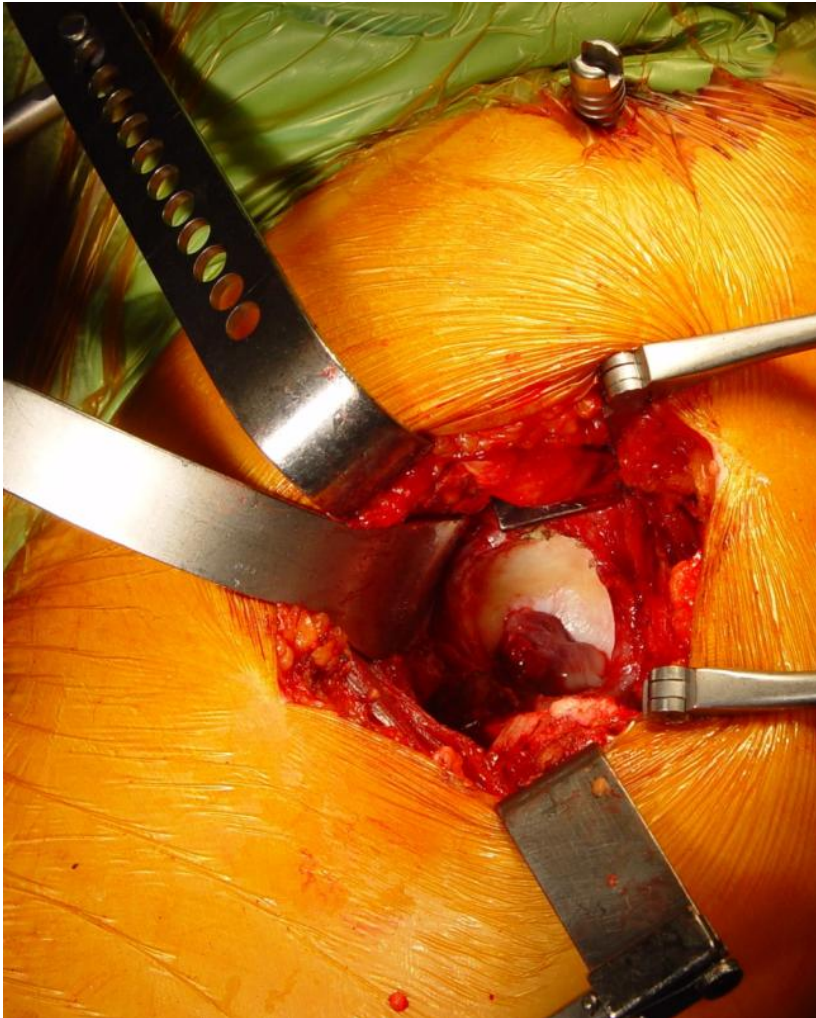


MSA™ PATIENT SELECTION



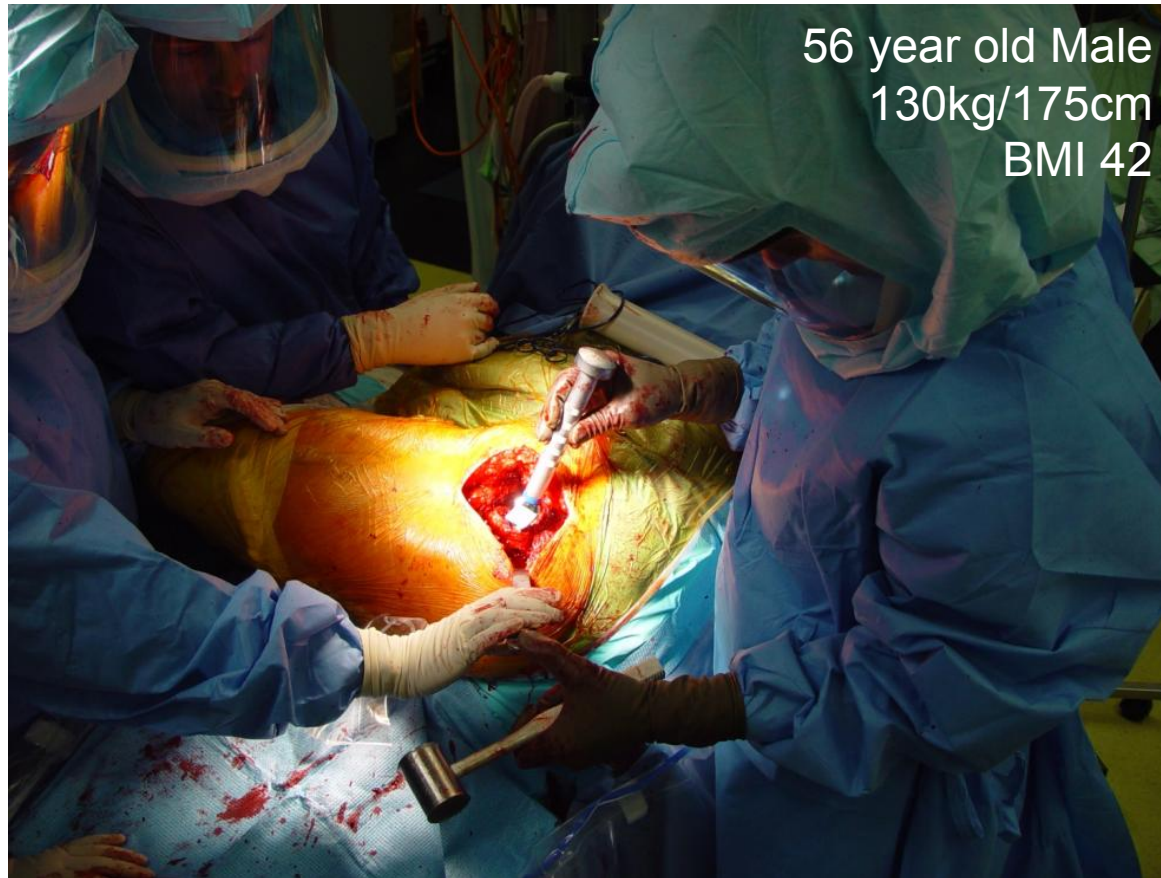
39 year old male
Perthes Disease

SURGICAL APPROACH



Recommend surgeon use their routine operative approach

SURGICAL APPROACH

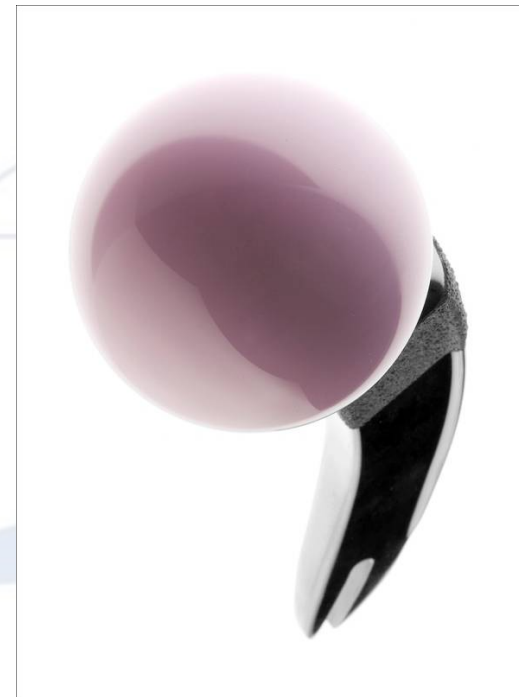


**Anterolateral operative
approach in obese patient**

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

EARLY EXPERIENCE MSA™ STEM

- 59 hip arthroplasties (3 bilateral simultaneous, 1 bilateral sequential)
- 55 patients
- 54 patients BioloX Delta 36 ceramic
- 1 patient metal/metal



MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

Patient demographics

- Sex: 45 male / 10 female
- Age: 27-73yrs Average 52yrs
- Weight: 63-157kg Average 84kg
- Height: 151-193cm Average 174cm
- BMI: 22-45 Average 26
- Side: 28 left / 31 right
- Disease
 - OA 49
 - AVN 4
 - DDH 3
 - Perthes 2
 - #NOF 1

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

Follow up

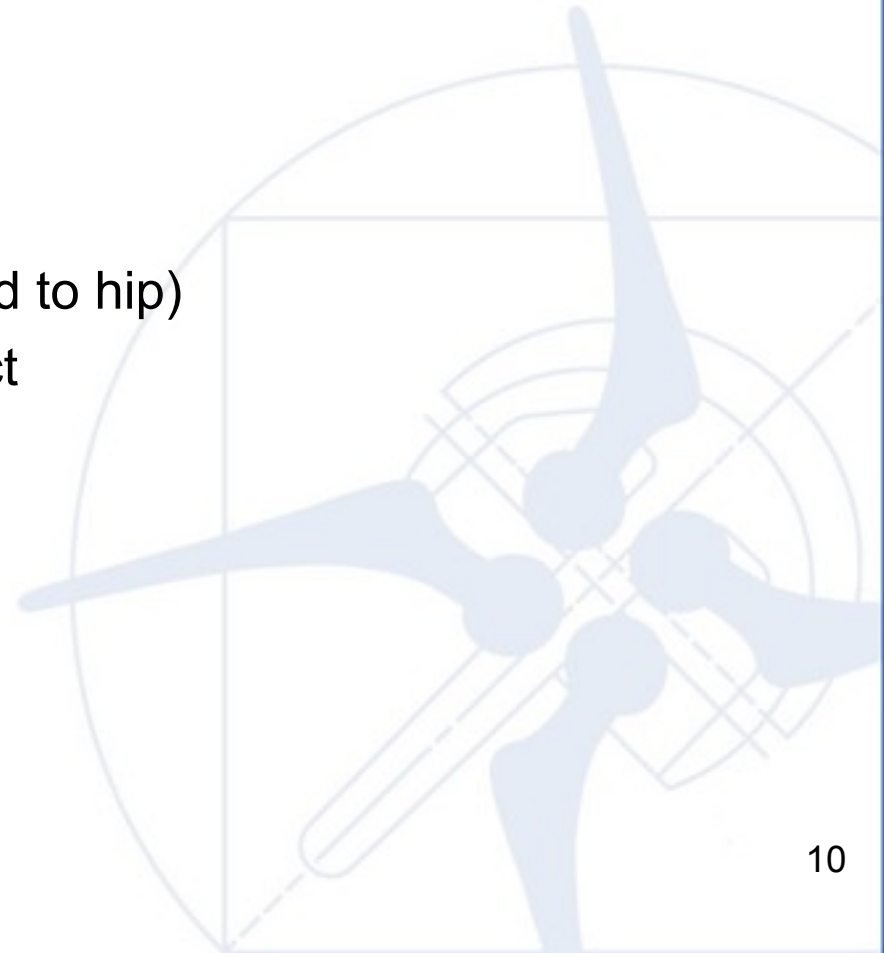
Average 19 months

Range 3–32 months

Deceased 1

8 months post op (unrelated to hip)

6 month follow up, hip intact



MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

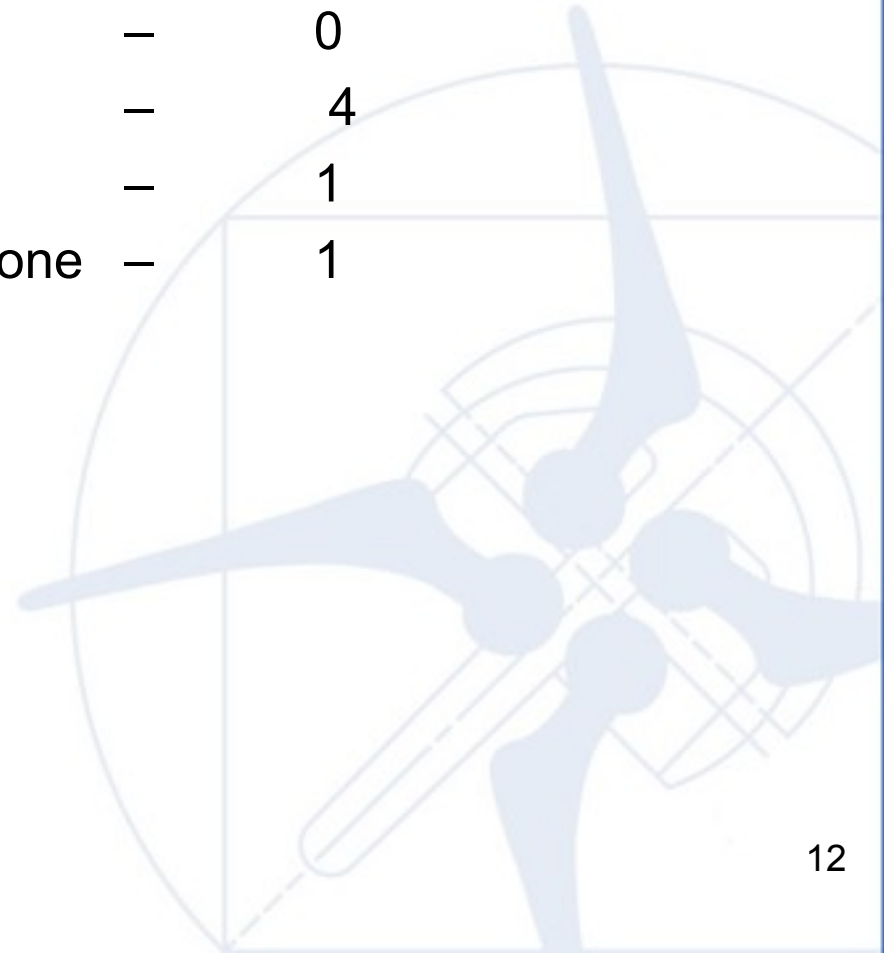
EARLY RESULTS

- Intraop fracture – 1 (no. 41 – successful THR)
- Postop fracture – 0
- Infections (superficial/deep) – 0
- Dislocation – 0
- Thigh pain – 1 (? Back and leg pain – bone scan negative)
- Subsidence – 1 (7 months post op, sit up in bed – mild pain 6 weeks, resolved – XR ingrowth/stable)
- Leg length inequality issues – 0
- Revisions/reoperations – 0
- Lucent lines – 0

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

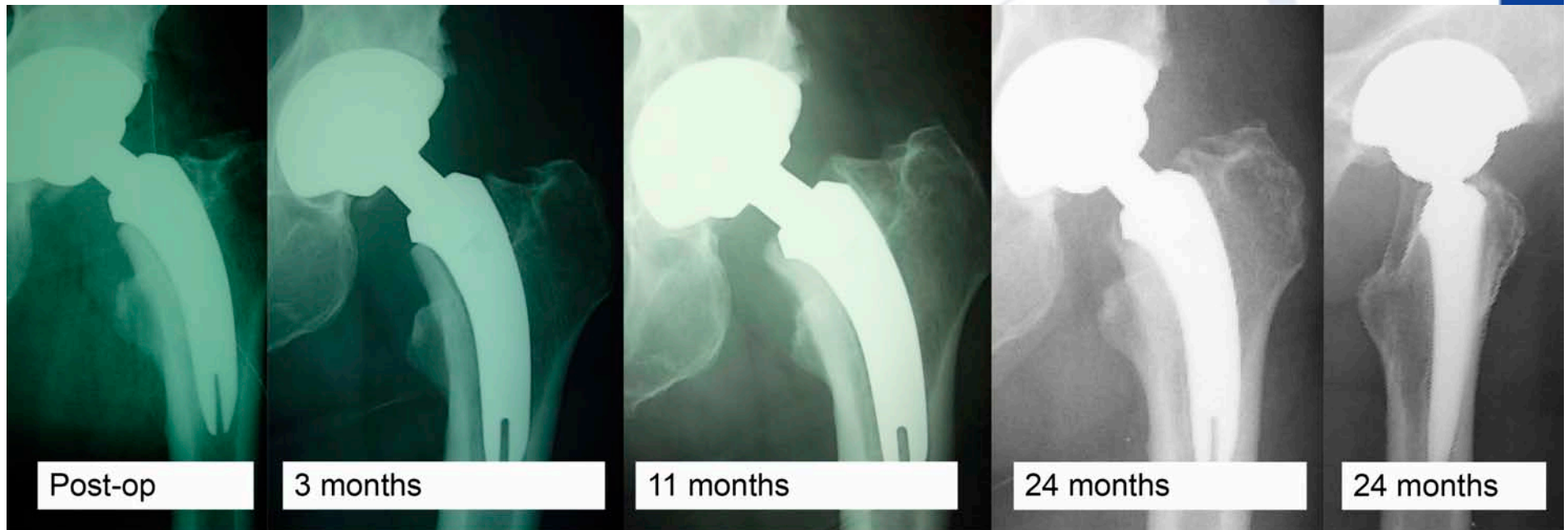
Calcar resorption/lysis	–	0
Insufficient time for response	–	4
No response	–	1
Subsidence/stabilised new calcar bone	–	1



MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

Non progressive subsidence/stabilised



Male
70 year old

175cm
72kg

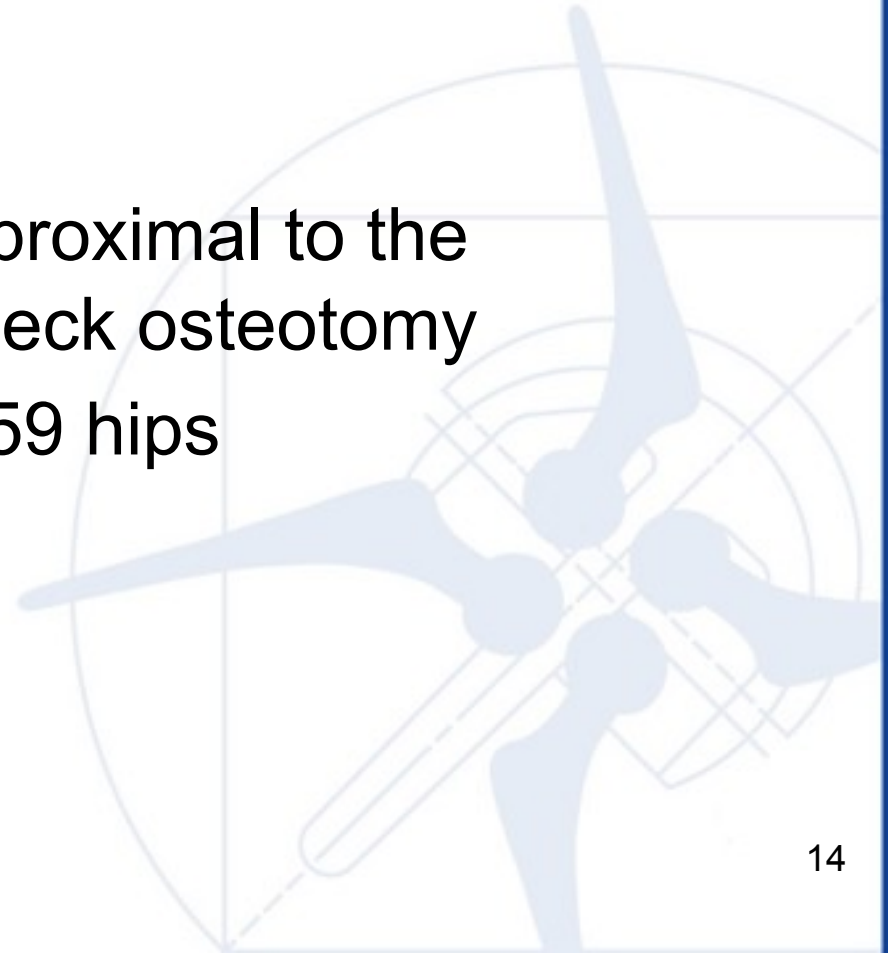
BMI 27
BMD (L) NOF -3.65

P.H Polymyalgal
steroids

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

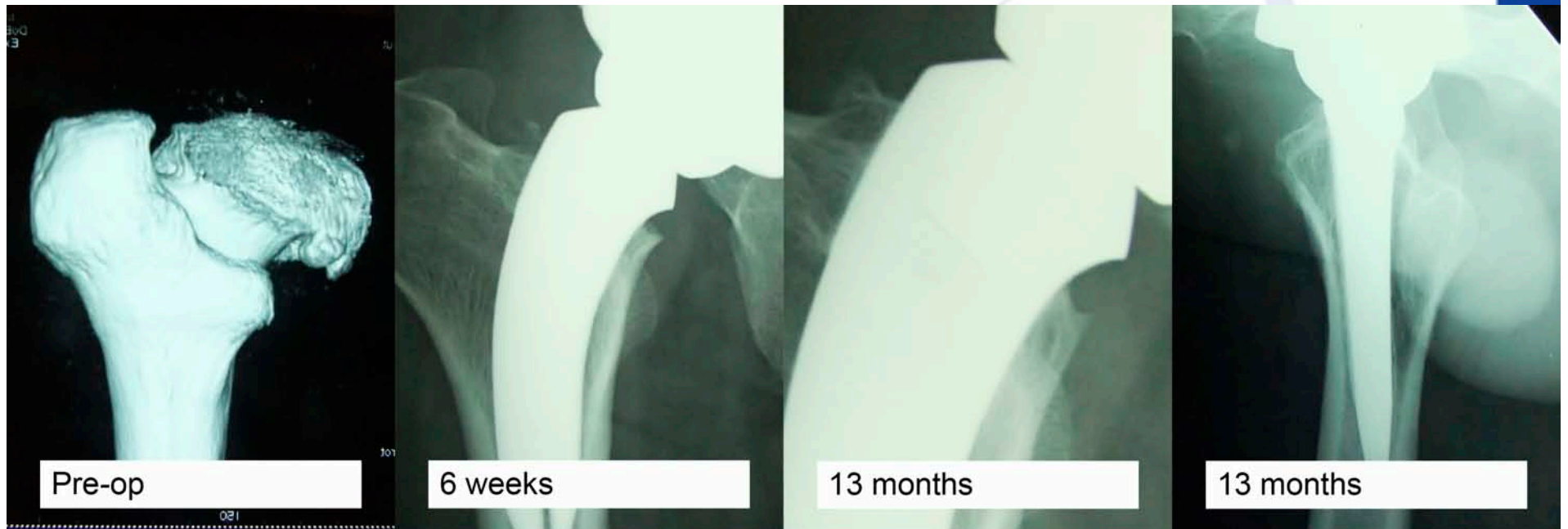
New bone proximal to the
femoral neck osteotomy
53/59 hips



MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

Fine new trabecular bone up to conical flare
6 patients



Pre-op

6 weeks

13 months

13 months

Male
39 year old

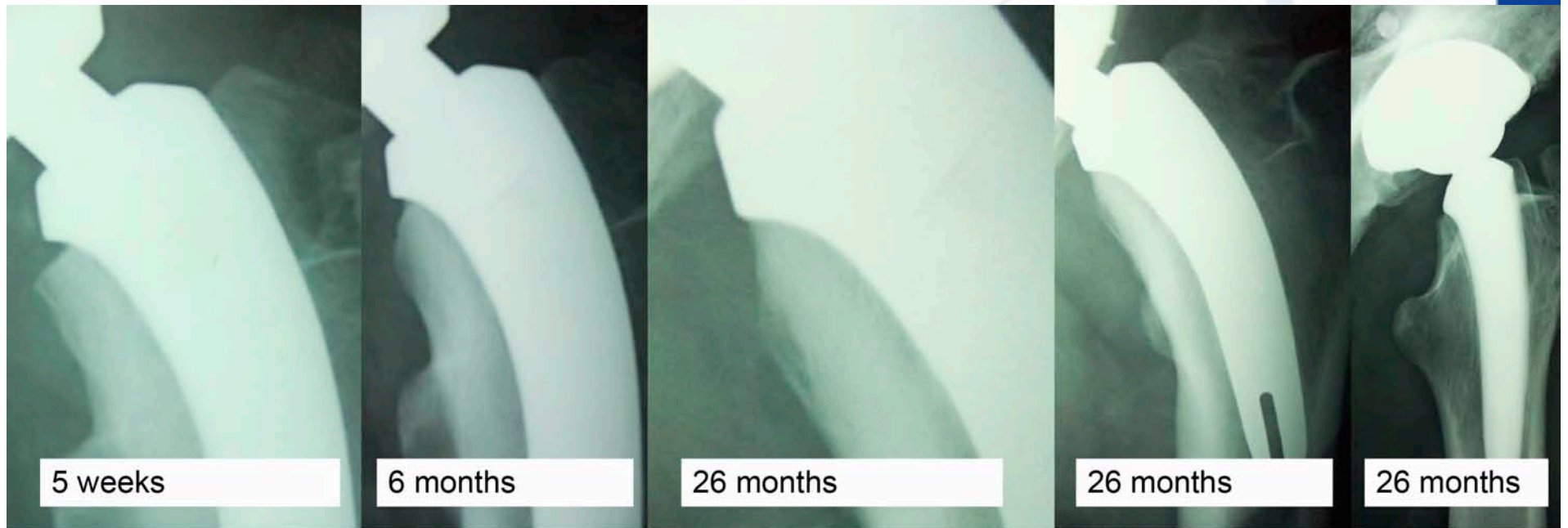
179cm
81kg

BMI 25

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

Dense new bone growing up to conical flare
24 patients



Male
62 year old

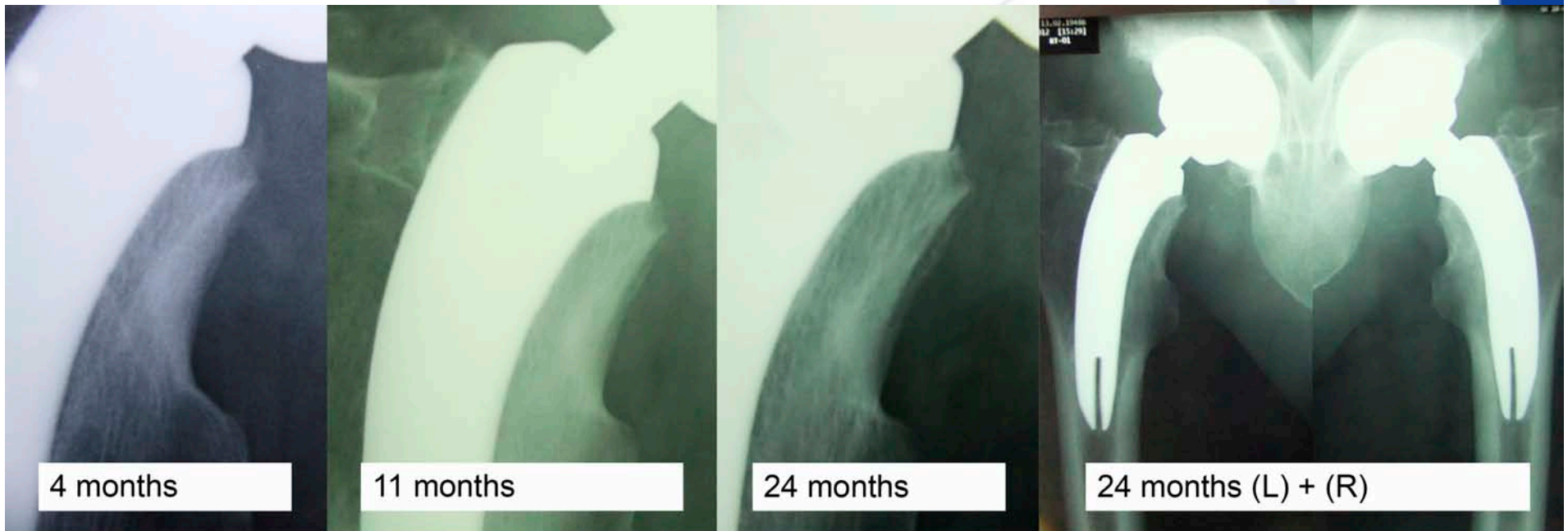
174cm
79kg

BMI 24

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

New trabecular bone struts up to conical flare
14 patients



4 months

11 months

24 months

24 months (L) + (R)

Male
60 year old

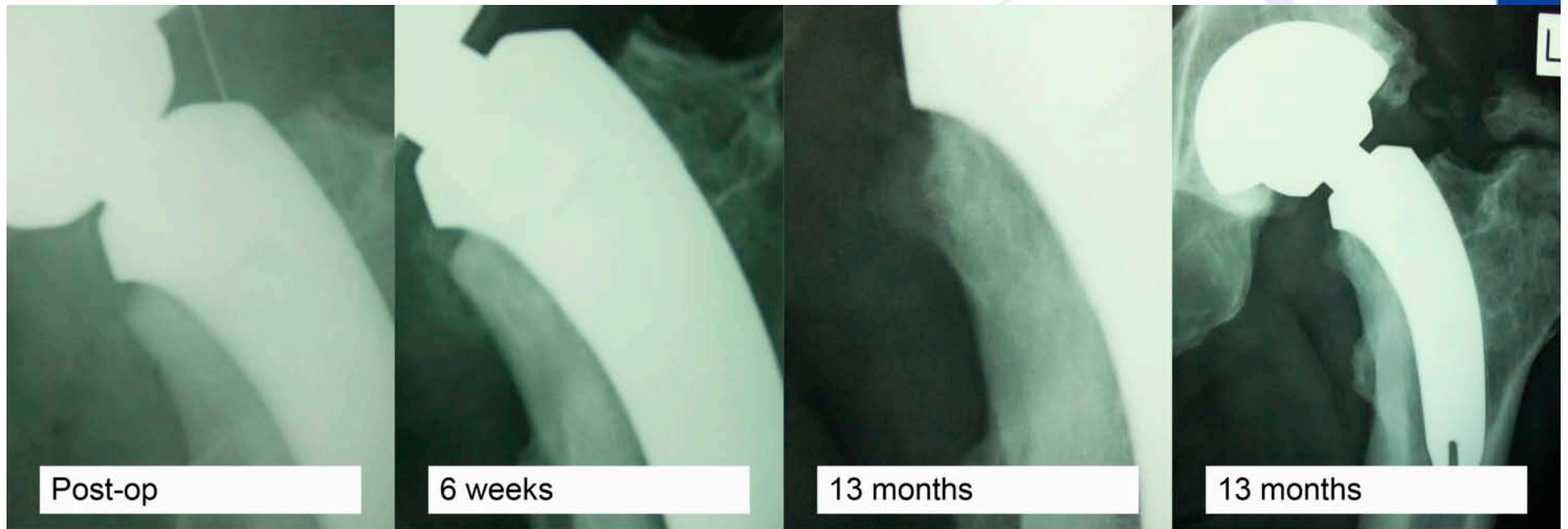
185cm
100kg

BMI 29

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

Increased density calcar and new trabecular
struts – 7 patients



Male
49 year old

184cm
102kg

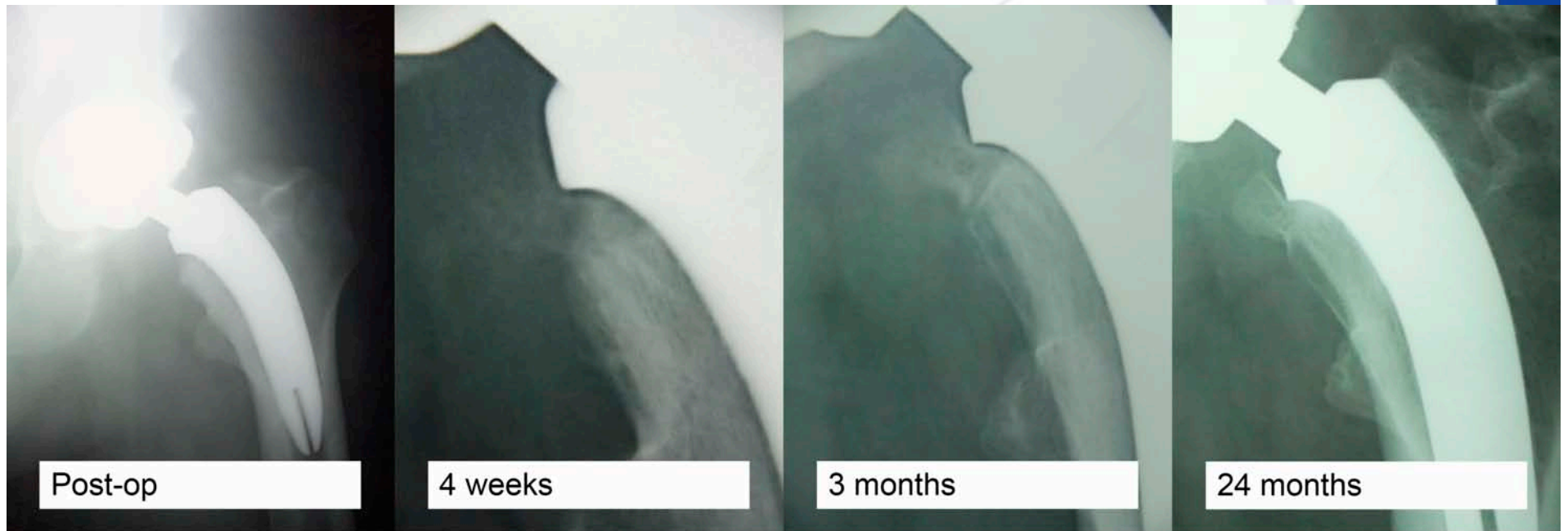
BMI 31
Marked stiffness

Bilateral
simultaneous

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

RESULTS CALCAR BONE RESPONSE

Increased density calcar, new trabecular struts 'heterotopic'
bone proximal to conical flare – 2 patients

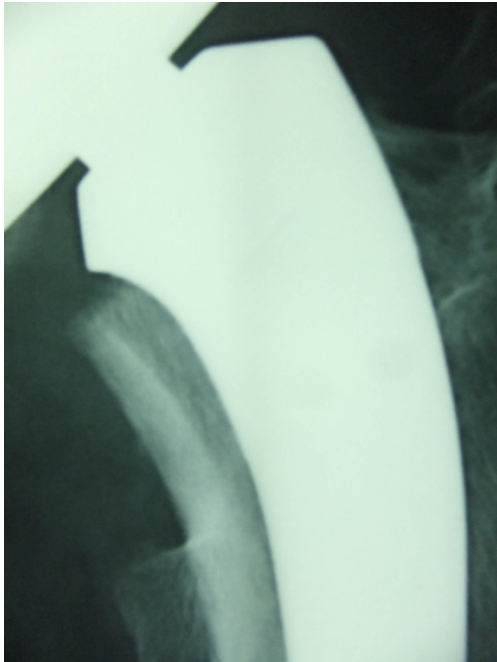


Male
66 year old

187cm
105kg

BMI 30

MSA™ FEMORAL NECK PRESERVING HIP ARTHROPLASTY

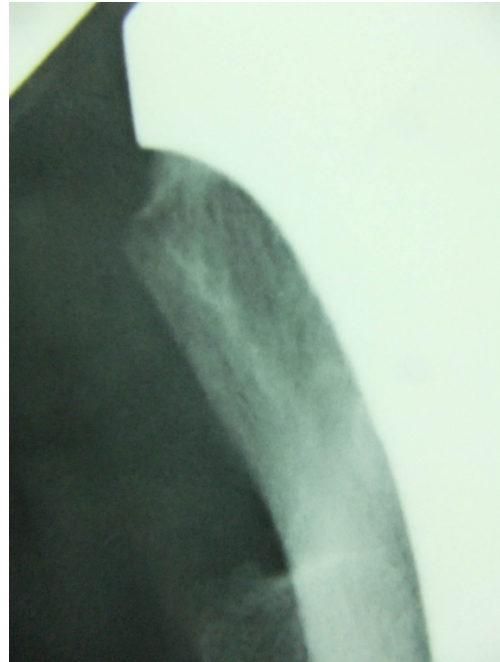


6 weeks

Rally car driver

Polocrosse

“Had to have” a metal/metal hip



14 months



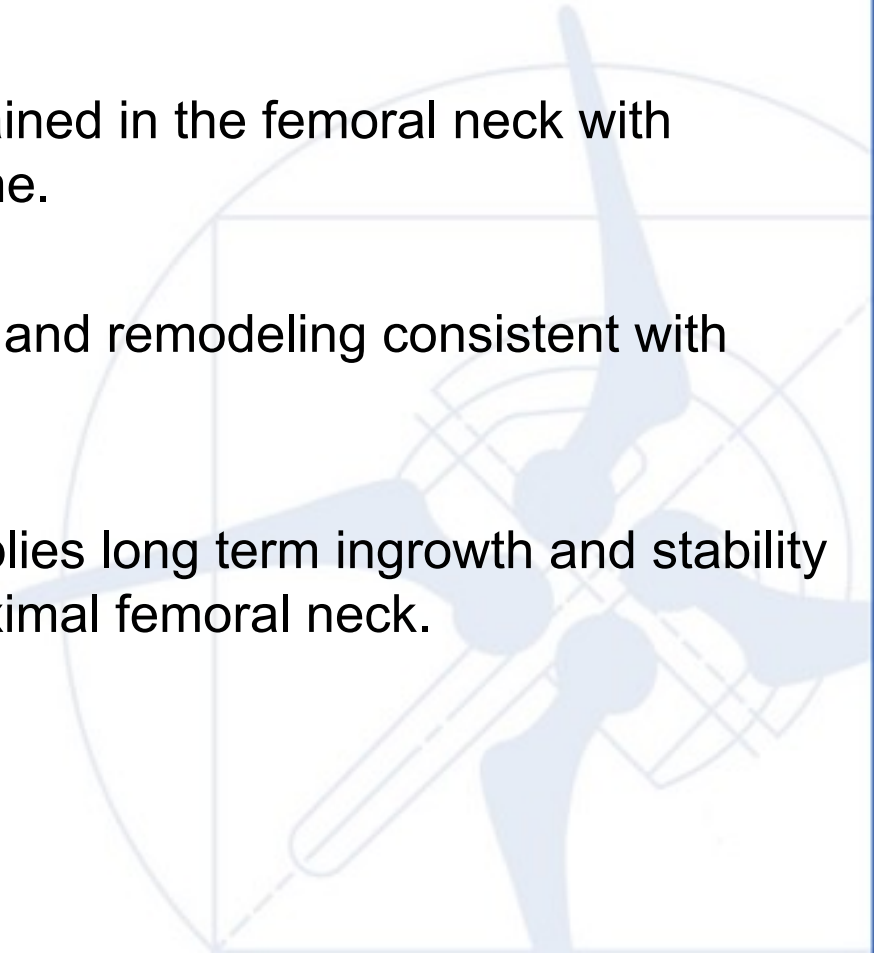
14 months



Hip is just great
Fantastic

CONCLUSION

- The MSA™ implant did achieve stable fixation and ingrowth in the proximal femoral neck.
- Physiological load can be maintained in the femoral neck with retention of proximal femoral bone.
- Evidence of new bone formation and remodeling consistent with Wolff's law.
- Physiological bone response implies long term ingrowth and stability of the femoral implant in the proximal femoral neck.



Thank you

