Management of severe bone loss

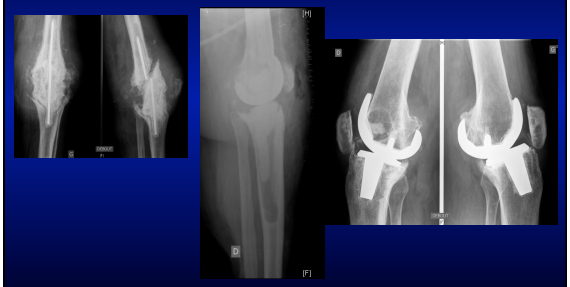
Sébastien Parratte, jean-Manuel Aubaniac,

Jean-Noël Argenson

Motion Institute,

Sainte Marguerite Universitary Hospital,

Most of time where a surgeon already put his hand



Management of severe bone loss

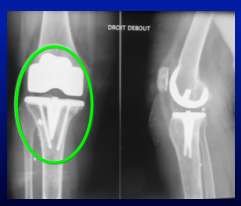
1. Where ?
2. Why ?
3. What can we use ?
4. Why do I use the Tantalum?

Question 1: Where ?

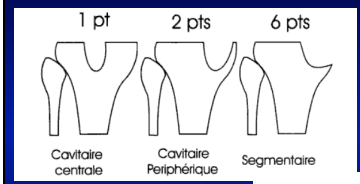
- Tibia
- Femur
- Patella

How to evalaute pre-operatively the bone loss?

- Standard X-rays
- CT scann

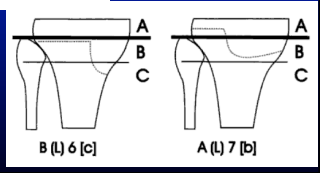


Nice classifications

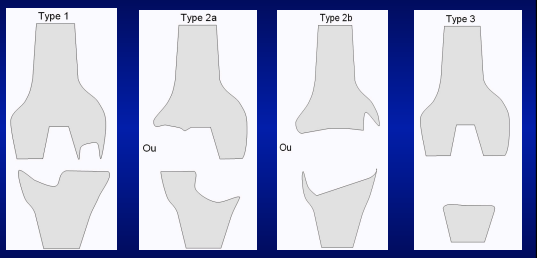


French Society

Everything But simple



Nice classifications



AAOS

Anderson Institute

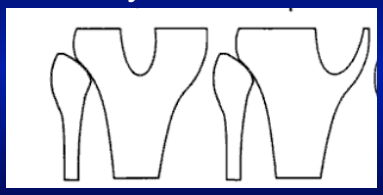
Practically speaking

Always under-estimated

Useful for publications

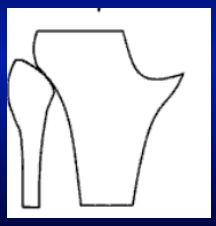
In the real life

Cavitary = fill

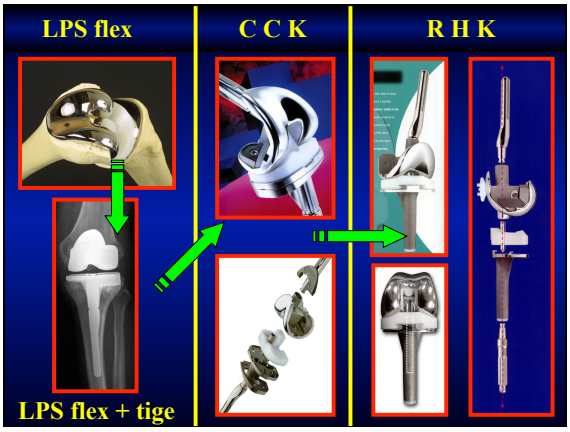


In the real life

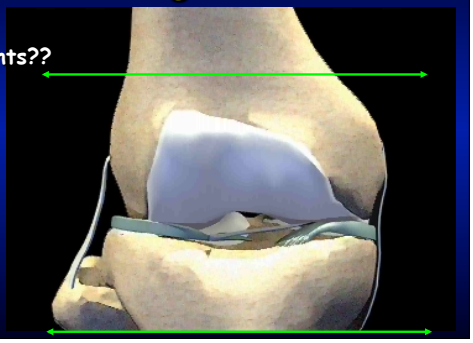
Segmental = rebuild



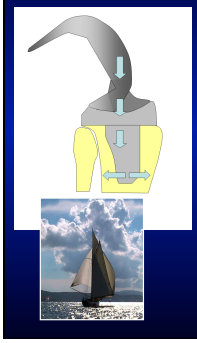
Question 2: Why ?



Just have to choose according to the ligament ?



Constrain and stresses



Classically

- **More constrain**
- **More stem**

Three Final goals

1. Stability of the implants
2. Joint line restauration
3. Mechanical axis restauration

Surgical challenge

With the time

Or

Stems and cement ?

One surgical challenge

Restauration of a strong and long lasting metaphysal support

Management of severe bone loss

Question 3:

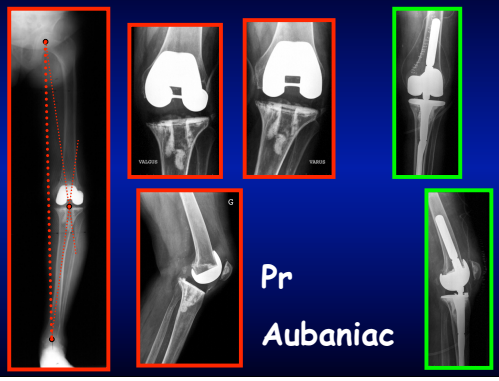
What can we use ?

We can remove the bone loss…

We can use

1. Cement
2. Bone graft
3. Bone substiute
4. Augment
5. Trabecular Metal®

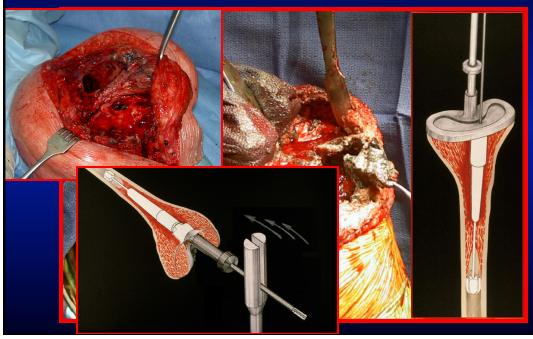
Cement: limited defect



Pr Aubaniac

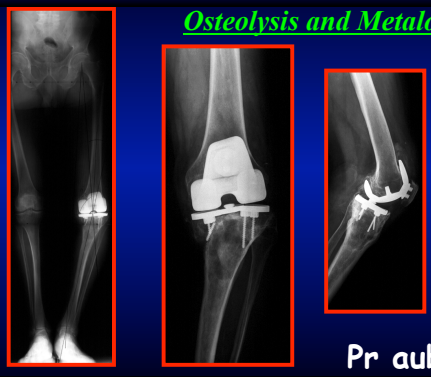
Morcelized allograft

Pr aubaniac



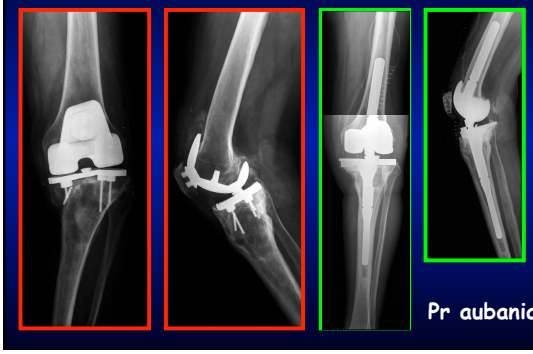
REVISION : METALOSIS

Osteolysis and Metalosis



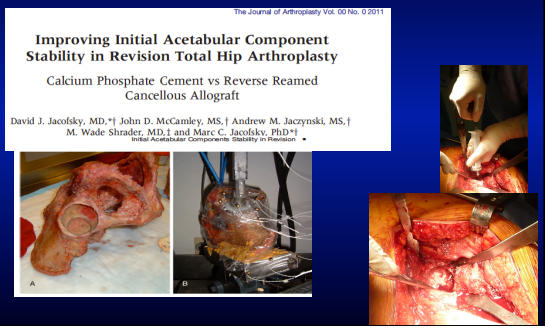
Pr aubaniac

REVISION MG → RHK



Pr aubaniac

Parratte S, Argenson JN, Flecher X, Aubaniac JM.
Rev Chir Orthop Reparatrice Appar Mot. 2007.
Acetabular revision for aseptic loosening in total hip arthroplasty using cementless cup and impacted morselized allograft.



The Journal of Arthroplasty Vol. 00 No. 0 2011

Improving Initial Acetabular Component Stability in Revision Total Hip Arthroplasty

Calcium Phosphate Cement vs Reverse Reamed Cancellous Allograft

David J. Jacofsky, MD,*† John D. McCamley, MS,† Andrew M. Jaczynski, MS,† M. Wade Shrader, MD,‡ and Marc C. Jacofsky, PhD*†

Initial Acetabular Components Stability in Revision •

Bone substitutes

Cavitary defect

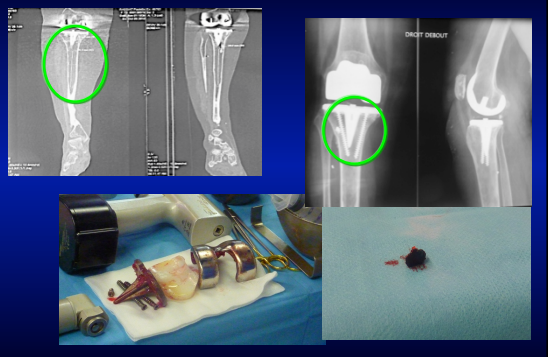
Clin Orthop Relat Res (2010) 468:64–72
DOI 10.1007/s11999-009-1018-0

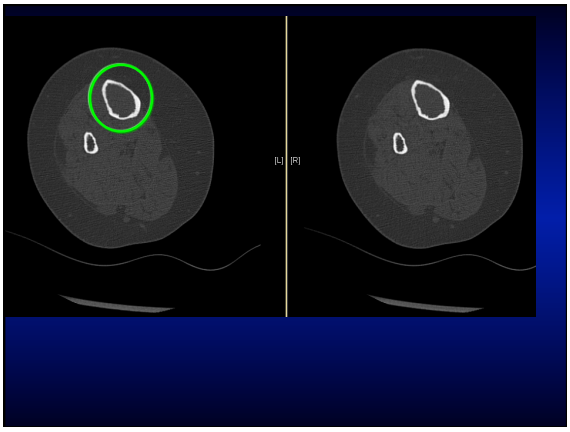
SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE KNEE SOCIETY

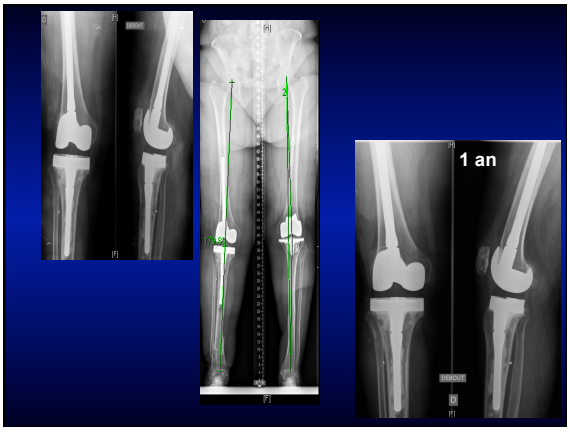
Survival of Bicompartmental Knee Arthroplasty at 5 to 23 Years

Sebastien Parratte MD, Vanessa Pauly MS, Jean-Manuel Aubaniac MD, Jean-Noel A. Argenson MD

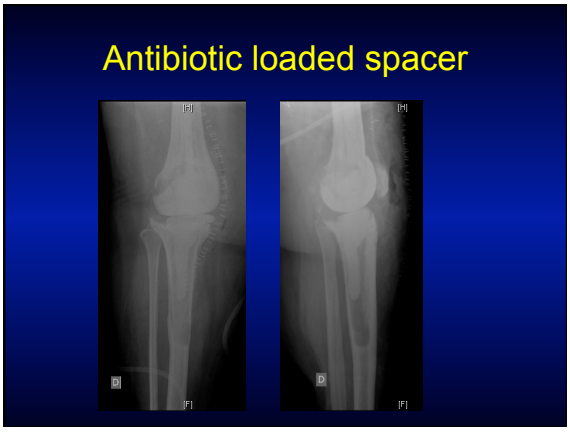
Osteolysis schrapnel and TKA screw

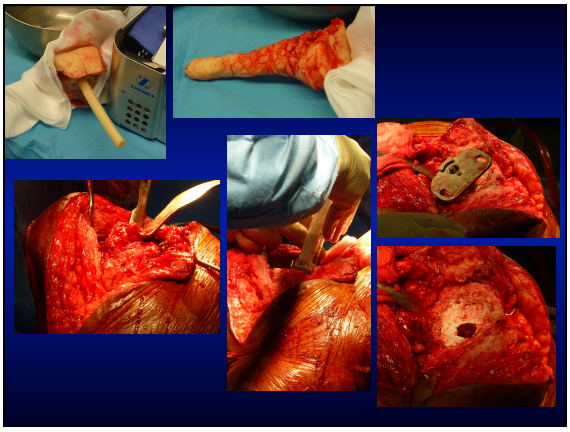




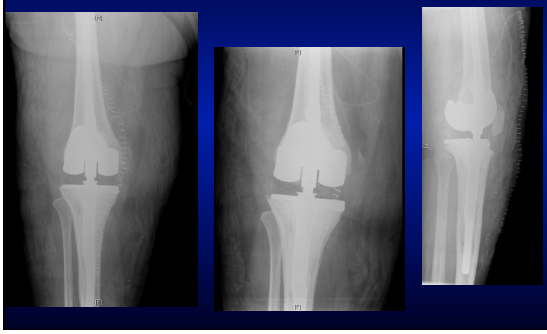

1 an

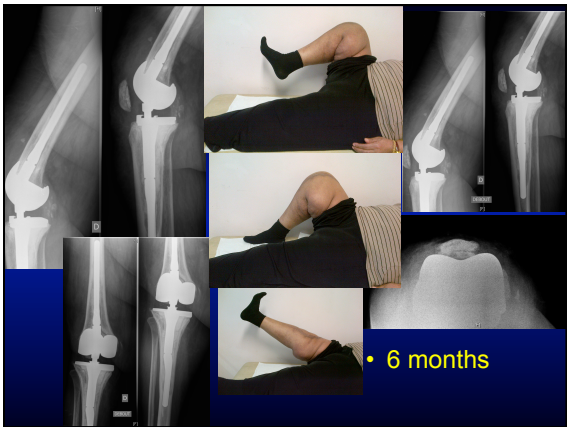

Loose hinged TKA


Antibiotic loaded spacer



Post-op X-ray



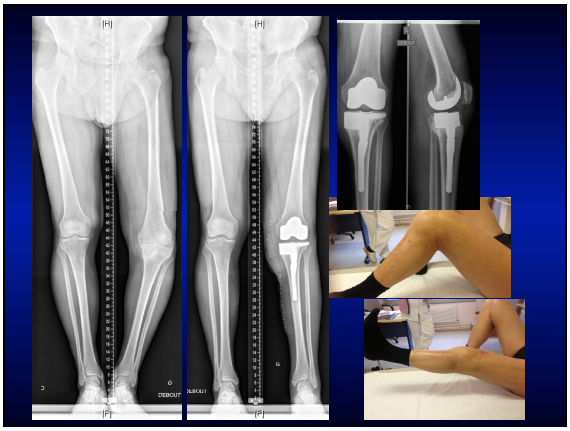


- 6 months

Combination with the Augments

Goals of the augments

- Compensate the defect
- Improve stability



Limits

One surgical challenge

Restauration of a strong and long lasting metaphysal support

Long lasting means alive

Management of severe bone loss

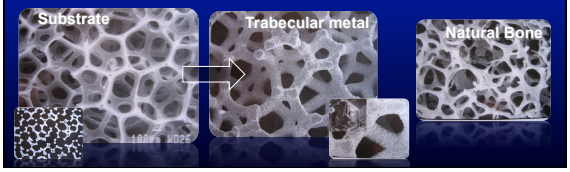
4. Why do I use the Tantalum?

TANTALUM

- Natural element number 73
- Electrolytic application of a crystal of Tantalum on a vitroceramic substrate

Tantalum

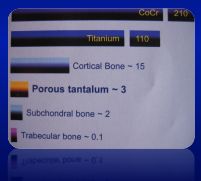
- Microarchitecture closed to the natural bone
- Porosity 60% *(coral 30%)*



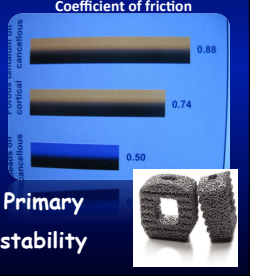
TANTALUM

Mechanical Properties

Elastic Modulus



Coefficient of friction

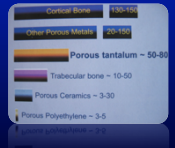


Primary stability

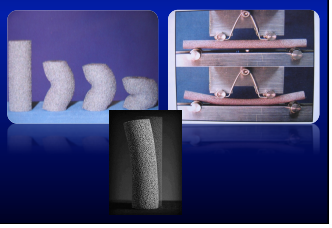
Tantalum

Mechanical properties

Plastic deformation

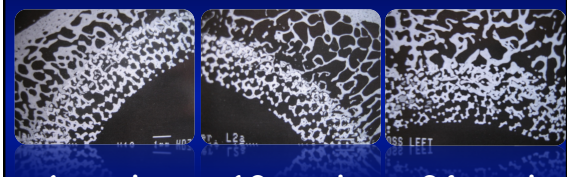


Resistance to the compression



TANTALUM

Bone ingrowth (EBM)



6 weeks 12 weeks 24 weeks

Tantalum

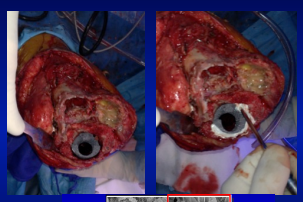
Bone ingrowth 24 weeks

Surgical challenge

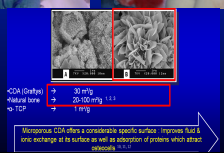
Levine B et al (The journal of Knee Surg, 2007, 20, 185-94)

Biological reconstruction

Calcium deficient apathite Quickset®

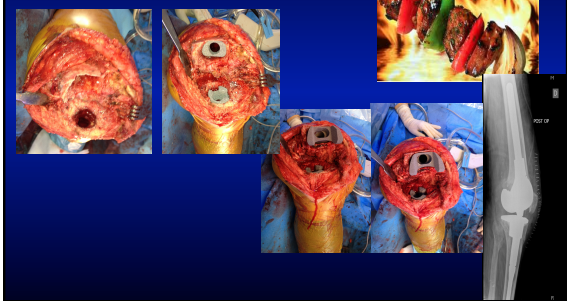


Gail Scuderi

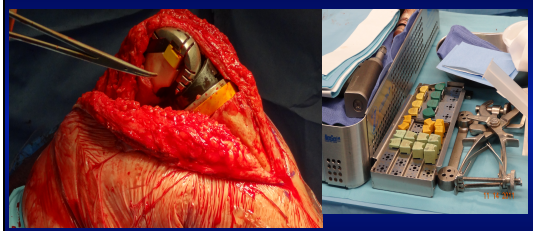


Femoral Epiphysal reconstruction

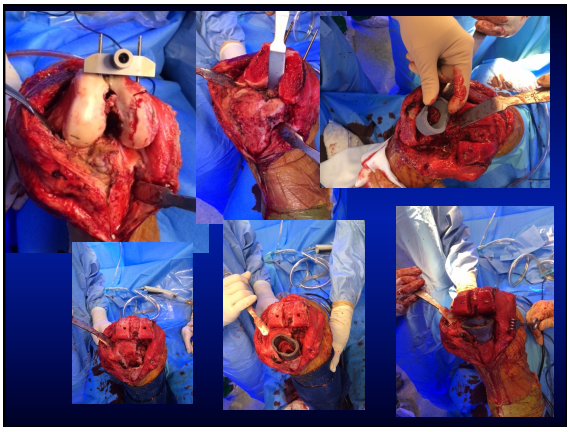
« Brochette technique »

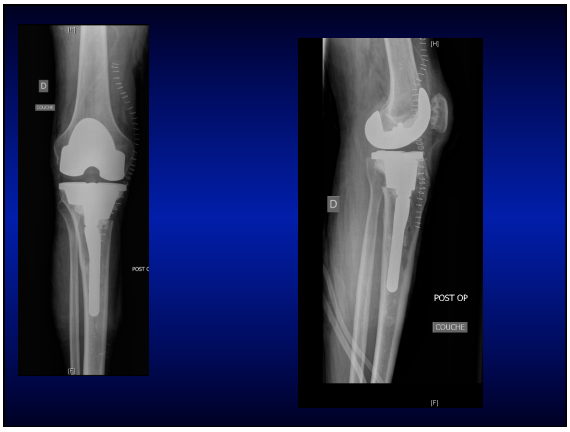


Augments in combination

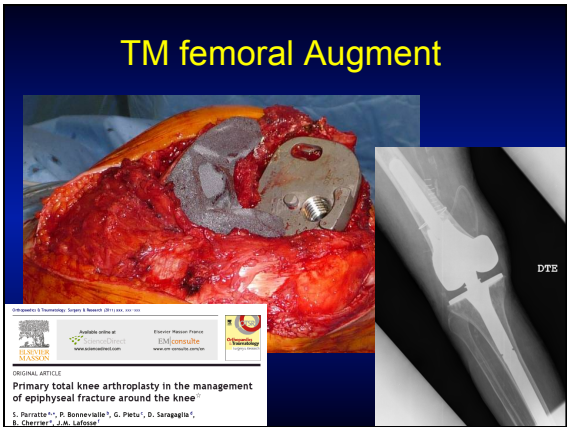



Post traum



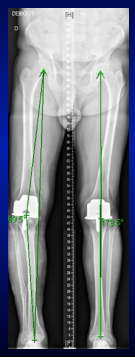

POST OP
COUCHE

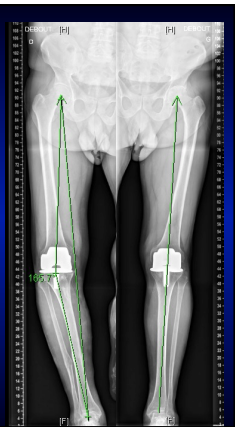

Trauma
R.H.K. Zimmer
♀ 85 years-old , Alone
At home Pain full knee before

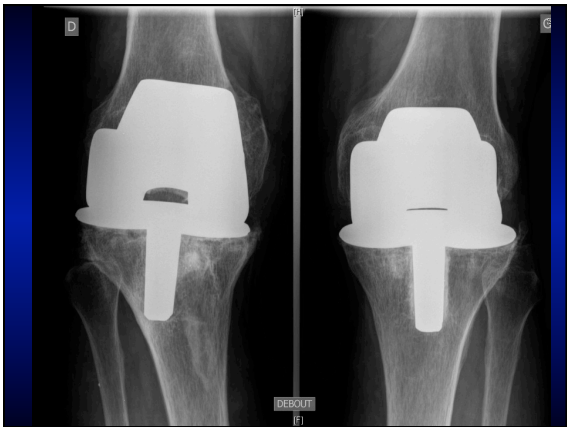

TM femoral Augment
DTE
ORIGINAL ARTICLE
Primary total knee arthroplasty in the management of epiphyseal fracture around the knee

Clinical cases : Wear, osteolysis and loosening

Male 54 years old

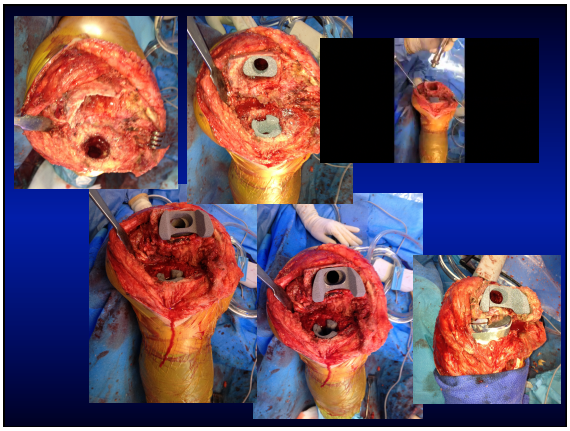






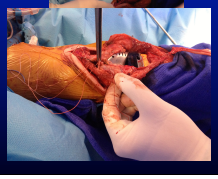
Use a PS implant

Clinical case : Extenseur mechanism reinforcement



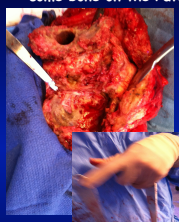
When there is almost no bone anymore

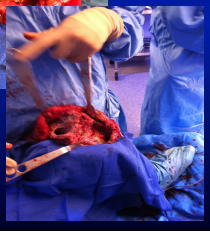
Patellar pocket technique



Gail Scuderi

When there is some bone on the Patella





Conclusion

Fill and rebuild

Combination

Restore the anatomy

Trabecular Metal®