Patella Baja and Pseudopatella Baja Incidence in Aseptic Revision TKA

Dimitrios A. Flevas, MD[1], Marco Brenneis, MD[1], Theofilos Karasavvidis, MD[2], Allina Nocon, PhD[1], Peter K. Sculco, MD[1]

1. Stavros Niarchos Foundation Complex Joint Reconstruction Center, Hospital for Special Surgery, New York, NY, USA
2. Adult Reconstruction & Joint Replacement, Hospital for Special Surgery, New York, NY, USA

HSS

Stavros Niarchos Foundation
Complex Joint Reconstruction Center

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INTRODUCTION

- The incidence of patella baja (PB) and pseudo PB (PPB) in revision total knee arthroplasties is not well defined.
- PPB describes a patella baja due to elevation of the joint line with absence of patellar tendon shortening
- There can be a joint line compromise after knee surgery affecting patella height that may lead to: decreased ROM and lever arm, anterior knee pain, anterior impingement between the patella and the tibial insert, patellar tendon rupture

PURPOSE

1- Determine the incidence of patella baja & pseudopatella baja

2- Explore the natural trajectory of joint line elevation throughout consecutive surgeries

3- Examine the association of revision indication to the presence of PB and PPB

METHODS

- A retrospective study (2017-2022)
- Consecutive revision patients who presented with the following indications for revision were categorized into stiff vs. non-stiff in the preoperative setting.
    - instability (non-stiff)
    - aseptic loosening (non-stiff)
    - arthrofibrosis / Stiffness
- The **Insall-Salvati Ratio (ISR)** and The **Blackburne-Peel Ratio (BPR)** were measured
- PPB was identified if
    Insall-Salvati Ratio (ISR) >0.8 and
    Blackburne-Peel Ratio (BPR) <0.54
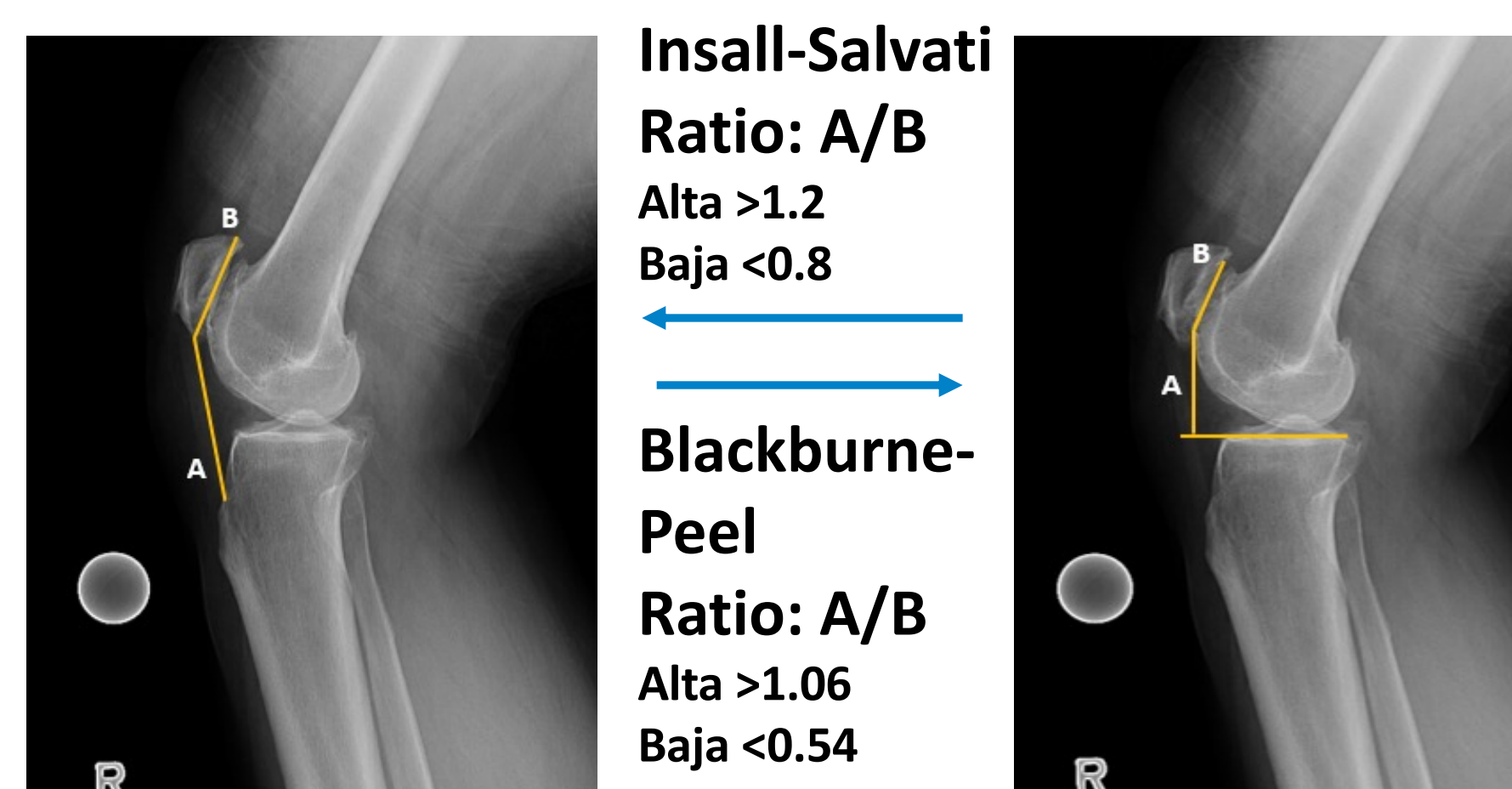
Insall-Salvati Ratio: A/B
Alta >1.2
Baja <0.8

Blackburne-Peel Ratio: A/B
Alta >1.06
Baja <0.54

Reason for Revision TKA

Non-stiff total	**N= 59 patients**
-Instability	N= 34 patients
-Aseptic Loosening	N= 25 patients
Stiff total	**N= 55 patients**

TABLE 1 Patella Baja

	Stiff	Non-stiff	p value
Pre rTKA - Patella_Baja	7 (13%)	6 (10%)	0.68
Post rTKA – Patella Baja	15 (30%)	9 (15%)	0.82

TABLE 2 PseudoPatella Baja

	Stiff	Non-stiff	p value
Pre rTKA - PseudoPatella_Baja	7 (13%)	6 (10%)	0.82
Post rTKA – PseudoPatella Baja	11 (20%)	23 (39%)	0.02*

Subanalysis: In the 69 patients who presented with a set of 3 X-rays there was noticed decrease of the values of both the ISR and the BPR.
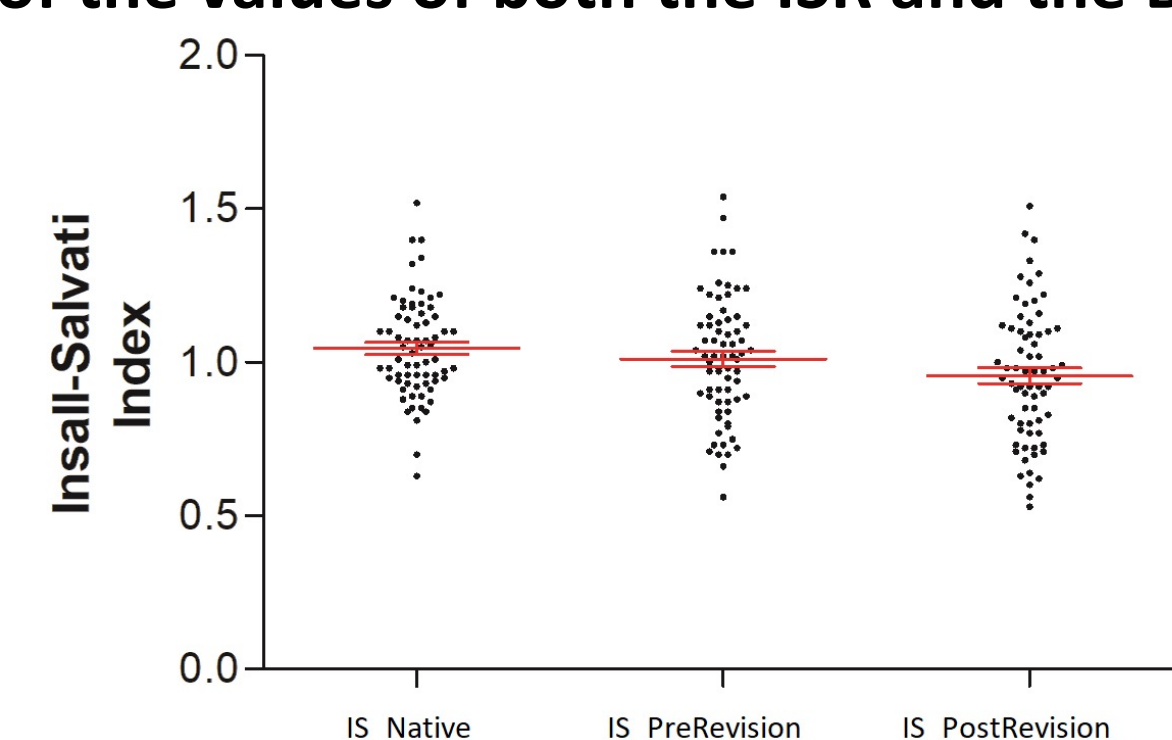
ISR: This was statistically significant before and after revision (**p=0.041**) and from the natural knee to post revision knee (**p=0.001**).
BPR: This was statistically significant before and after revision (p=0.001) and from the natural knee to both pre- and post-revision knees (**p<001**).

RESULTS

114 patients had both preoperative and post-op xray
- Mean age of 67.2 years
- 80 (70%) female

Overall
Incidence rate of Patella Baja
before rTKA: 13 (11.4%)
after rTKA: 24 (21%)
Incidence rate of Pseudopatella baja
before rTKA: 13 (11.4%)
after rTKA: 34 (29.9%)
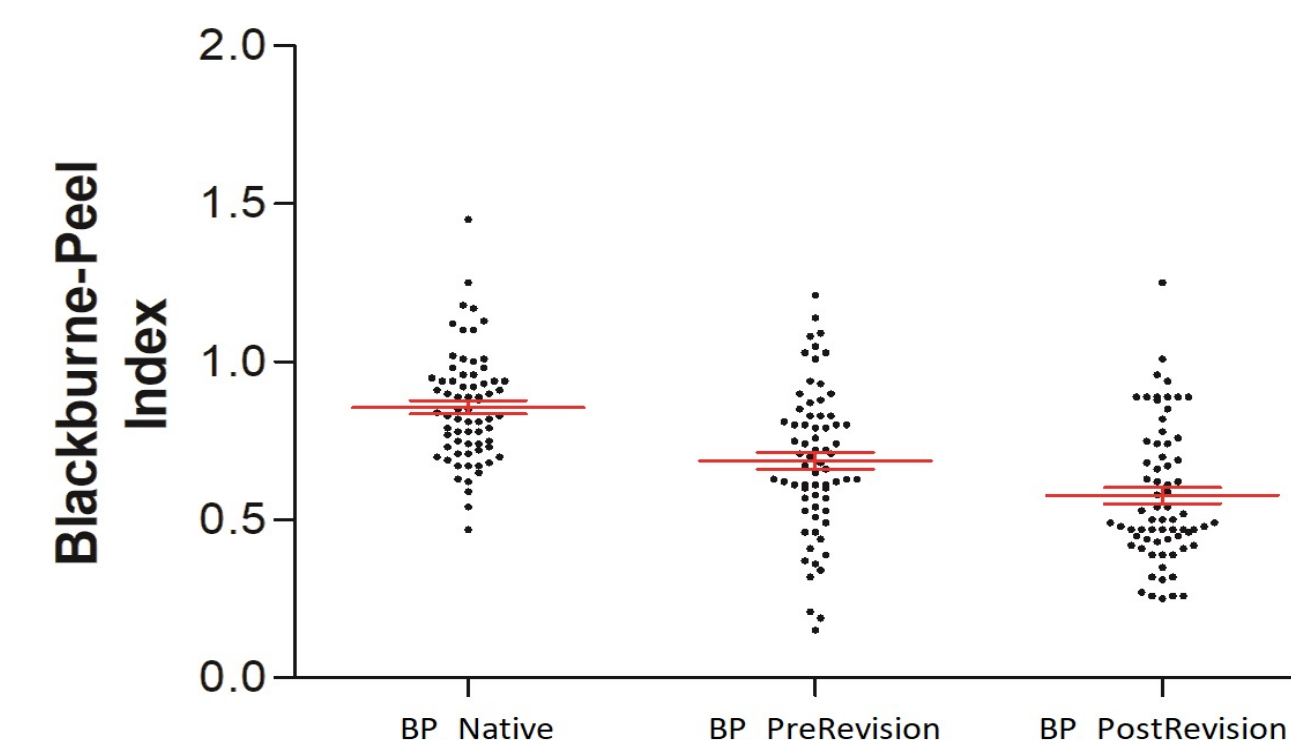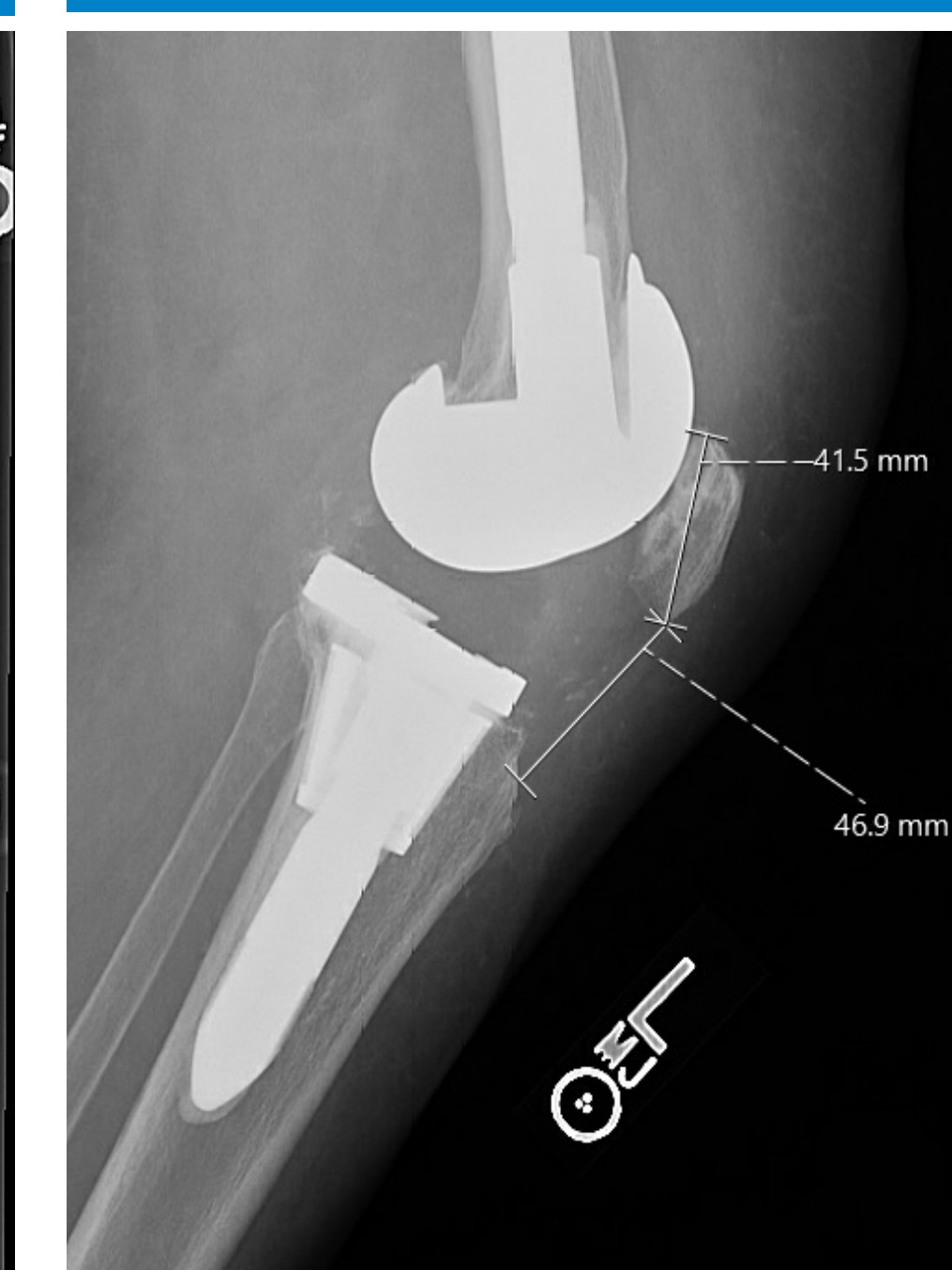
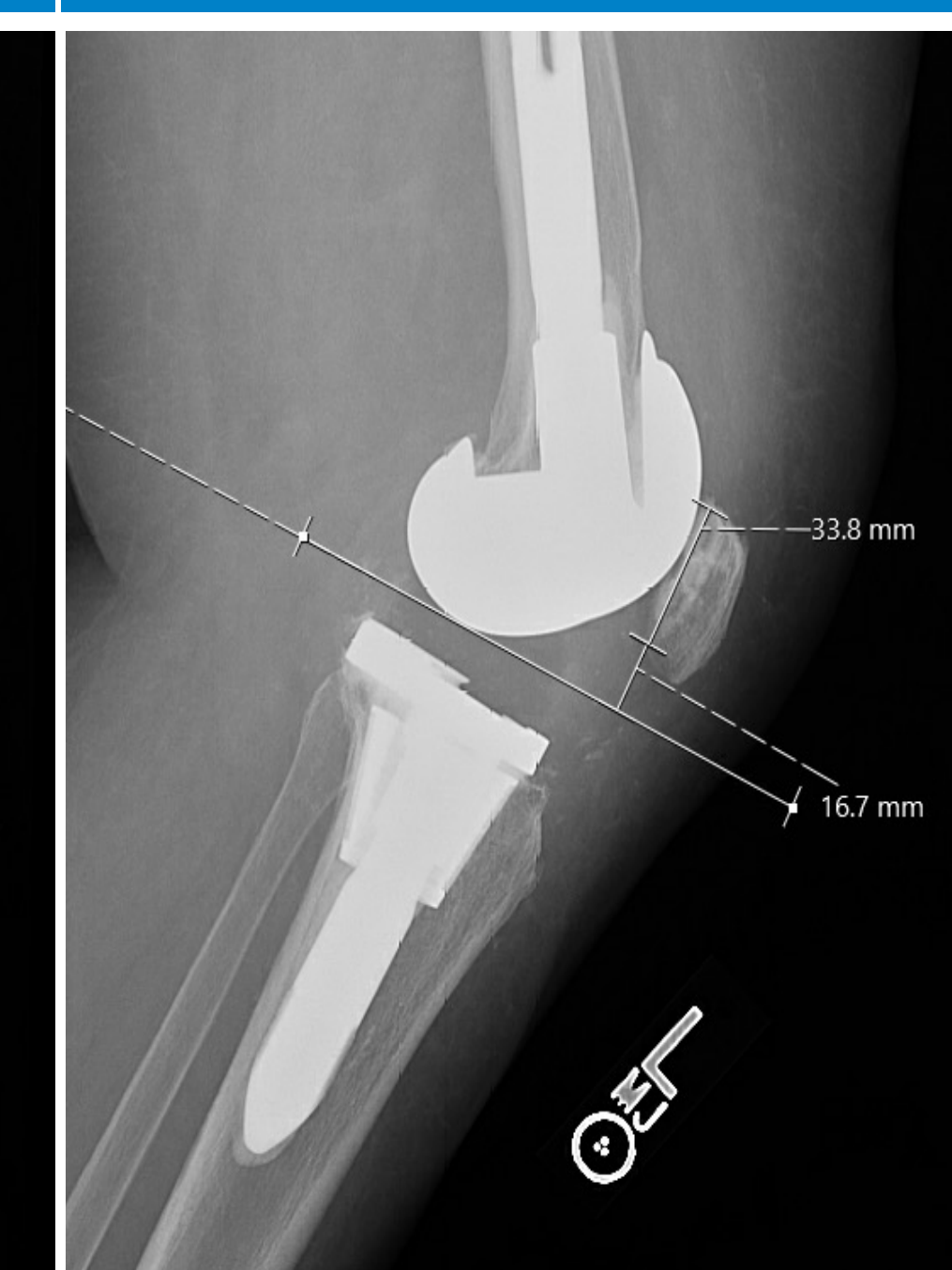## FIGURE 1

ISR < 0.8
Patella Baja

FIGURE 2

ISR > 0.8
Pseudopatella Baja

FIGURE 3

&
BPR < 0.54

CONCLUSIONS

- The decrease of the value in BPR after each procedure is higher. This might be an indirect sign of elevation of the joint line since the method used to calculate BPR takes into account the joint line.
- The stiff group presented with the highest percentage of true PB after rTKA (30%), and also showed the highest increase in PBs after rTKA (17%). Presence of arthrofibrosis and scarring might affect the patellar tendon.
- Non-stiff group presented with the highest percentage of PPB after rTKA (39%), and also showed the highest increase in PPBs after rTKA (29%).

The findings are consistent with the concept that joint line compromise may be a consideration during the correction of instability or looseness while the patella tendon remains intact.

@HSS_ARJR_CJRC
Email: complexjoint@hss.edu