Medical and Research Publications
International Open Access

Case Report **Journal of MAR Orthopedics (Volume 3 Issue 2)**

The "Iliopsoas Polish" Resulting from Iliopsoas Impingement Against the Acetabular Component after Primary Total Hip Arthroplasty

Mr Wahidun Nabi. BM, BSc [1], Mr Satish Kutty. MBBS, FRCS I, MSc, FRCS (Tr&Orth)[2]

1,2. Department of Orthopaedics, Princess Alexandra Hospital NHS Trust, Hamstel Road, Harlow, Essex, United Kingdom

Corresponding Author: Mr Wahidun Nabi, Mr Satish Kutty, Department of Orthopaedics, Princess Alexandra Hospital NHS Trust, Hamstel Road, Harlow, Essex, United Kingdom

Received Date: March 14, 2022

Published Date: April 01, 2022

Abstract

Case*: 37-year-old female presented with groin pain, 2years post Total Hip Arthroplasty (THA). She had the symptoms since her primary THA. Conservative treatment options were fully exhausted. She was struggling to mobilise and used crutches for support. Radiological investigations confirmed un-coverage of the Acetabular component. During revision the acetabular component showed complete loss of surface coating at the exposed area ('Iliopsoas Polish") due to impingement of the Iliopsoas against the acetabular component.*

Conclusion*: This case visually demonstrates the significant impact of Iliopsoas impingement and highlights the importance of the Psoas fossa against the Transverse Acetabular Ligament in Acetabular component positioning.*

Key Words*- Groin pain, Total Hip Arthroplasty, Psoas Impingement, Psoas fossa*

Introduction

Groin pain after Total Hip Arthroplasty (THA) has been reported between 0.4- 18% (1). Chalmers et al (4) have reported on the largest cohort on iliopsoas impingement after THA. They evaluated their results based on operative and nonoperative treatment. They also evaluated the radiographic and diagnostic variables that would help in identifying predictors of success and failure. Acetabular component positioning is key to prevent impingement. The Transverse Acetabular Ligament (TAL) (5) has long been used as a guide for component positioning. We have shown that this can still result in uncoverage and the Psoas Fossa (PF) should be used more as a guide to prevent impingement (6). This case report highlights the serious nature of component uncoverage.

Case Report

A 37-year-old female presented with groin pain 2 years after THA. She had a background of Dysplasia of the hip for which she underwent a Periacetabular Osteotomy (PAO). When she subsequently developed secondary osteoarthritis, she underwent a THA. She had persistent groin pain since the operation.

She had conservative options trailed including physiotherapy and injections with minimal initial success. She struggled with pain and had to resort to the use of crutches to aid mobilisation.

On presentation, she had an antalgic gait. She was using crutches. Her hip range of movements were very painful especially flexion and internal rotation. Resisted straight leg raise was also very painful. Plain radiographs of the pelvic (figure1) and a lateral (figure2) of the affected hip were undertaken. The lateral view showed that there was uncoverage of the acetabular component anteroinferiorly. A Computerised Tomography (CT) scan confirmed this (figure3). After discussion of options, the patient decided to proceed with revision of the acetabular component. Revision of the right THA was undertaken. A Standard Posterior approach using the previous incision scar was utilised. The Hip was dislocated and the ceramic head was removed. The trunnion of the femoral component was protected with a swab. The Acetabular component was then removed using the Explant system (Explant Acetabular Cup Removal System. Surgical Technique. Zimmer Inc., Swindon, UK.). The removed acetabular component showed complete loss of surface coating over the exposed area (Figure-4). The rest of the surface of the acetabular component showed no loss of surface coating with evidence of bone ingrowth on it (Figures 5,6). The Iliopsoas muscle was assessed and found to be thickened, possibly as a result of repeated impingement.

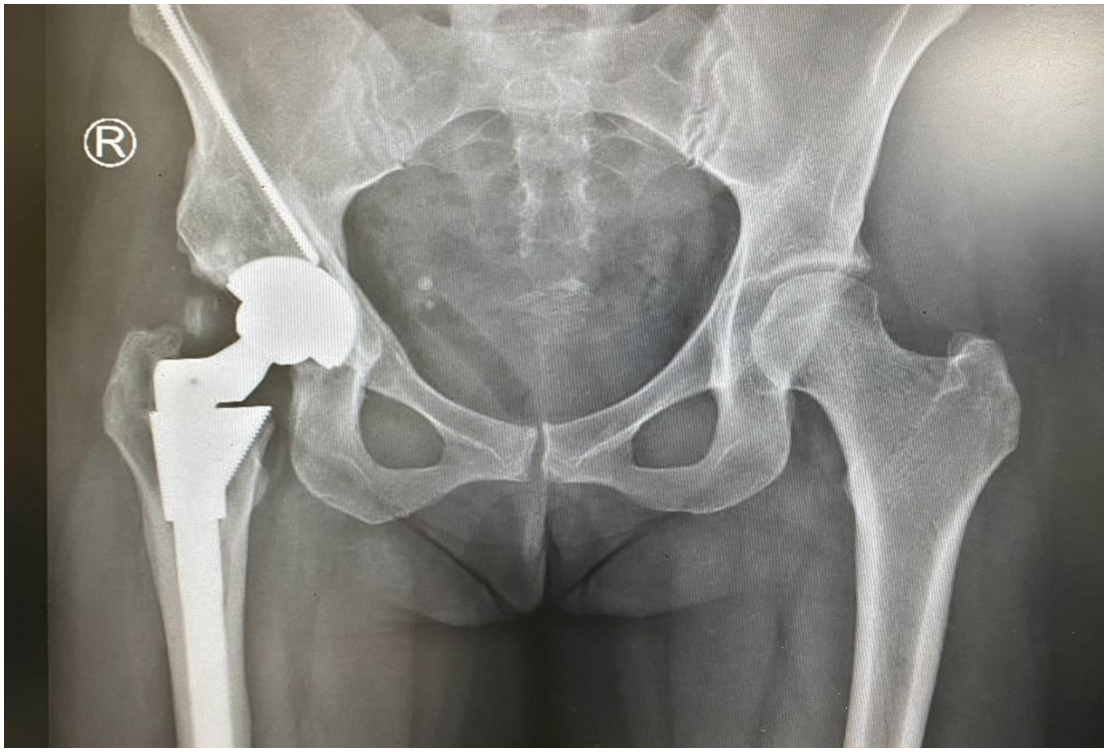


Figure 01- Plain Radiograph of the Pelvis taken at presentation

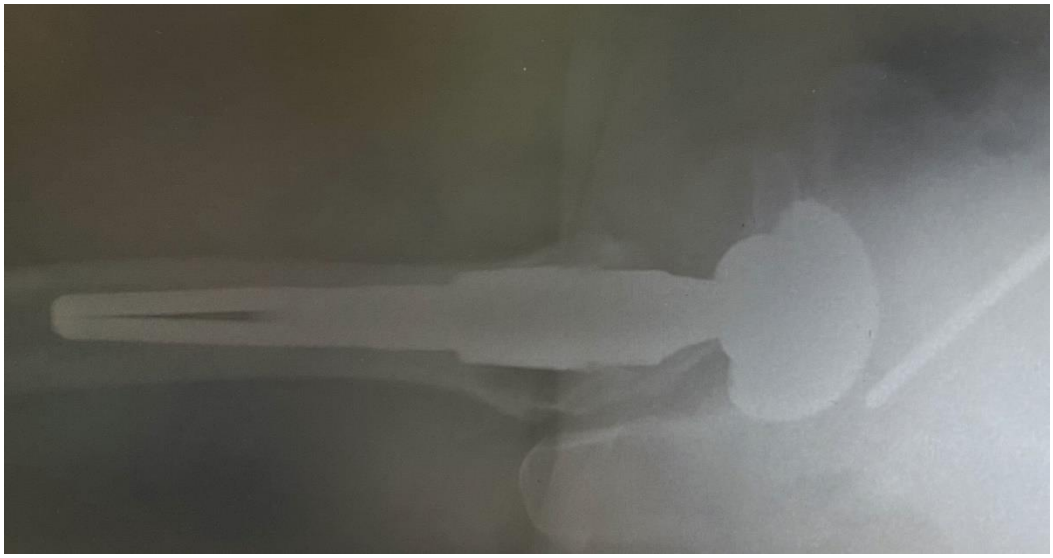


Figure 2- Lateral – Shoot through view of the same hip at presentation

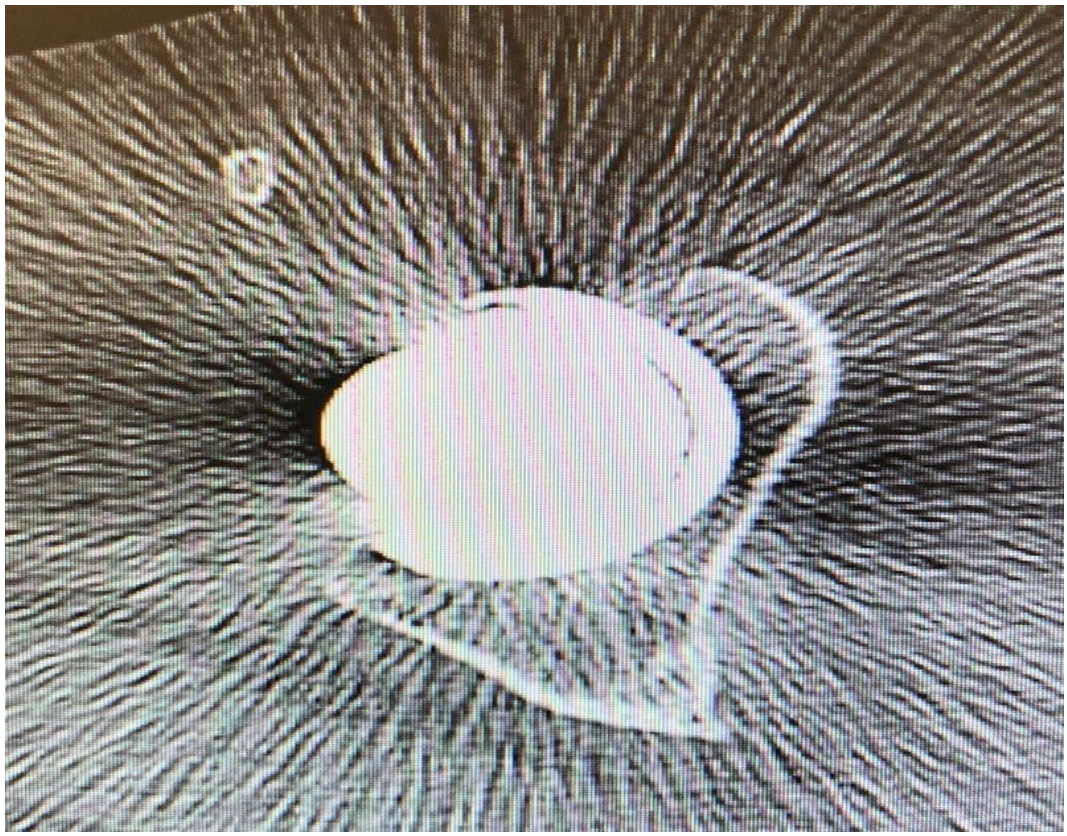
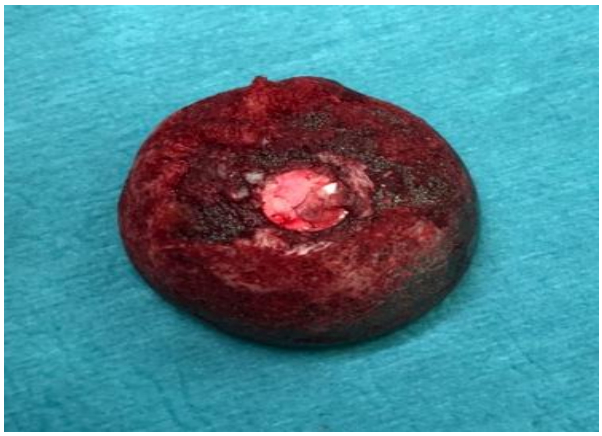


Figure 3- CT scan showing uncovergae of the Acetabular component.

Figure 4. Removed Acetabular Component showing complete loss of surface coating over the exposed area.



Figures 5,6- Removed Acetabular component showing presence of surface coating with evidence of bone in growth over the rest of the surface.

Figure 7- Plain Radiograph of the Pelvis at a Year postoperatively.

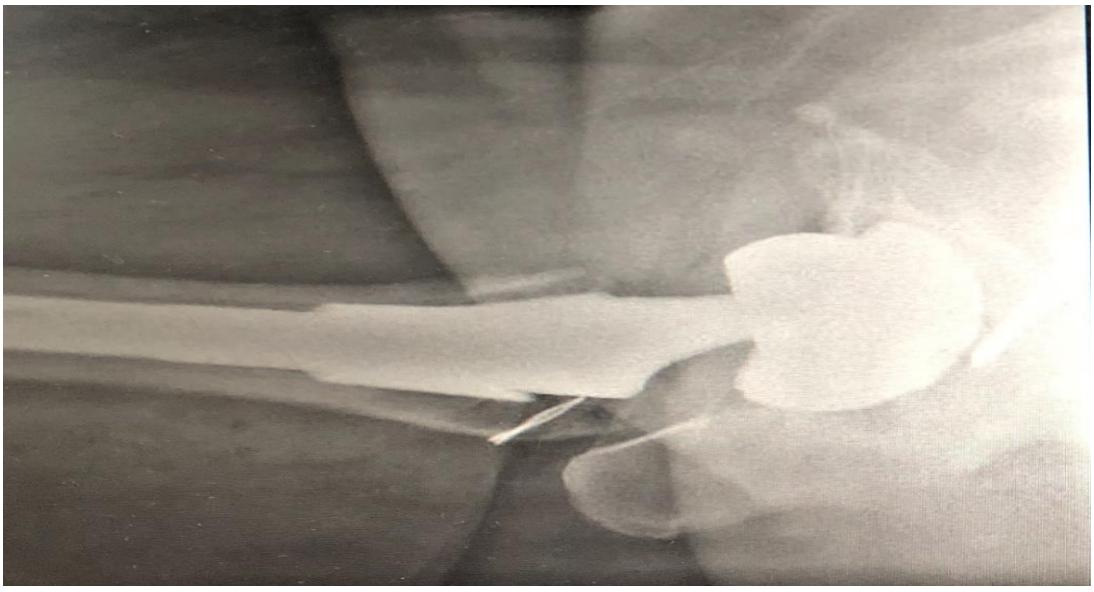


Figure 8. Lateral view showing broken drill bit at revision for reattachment of short external rotators – which has not caused any problems.

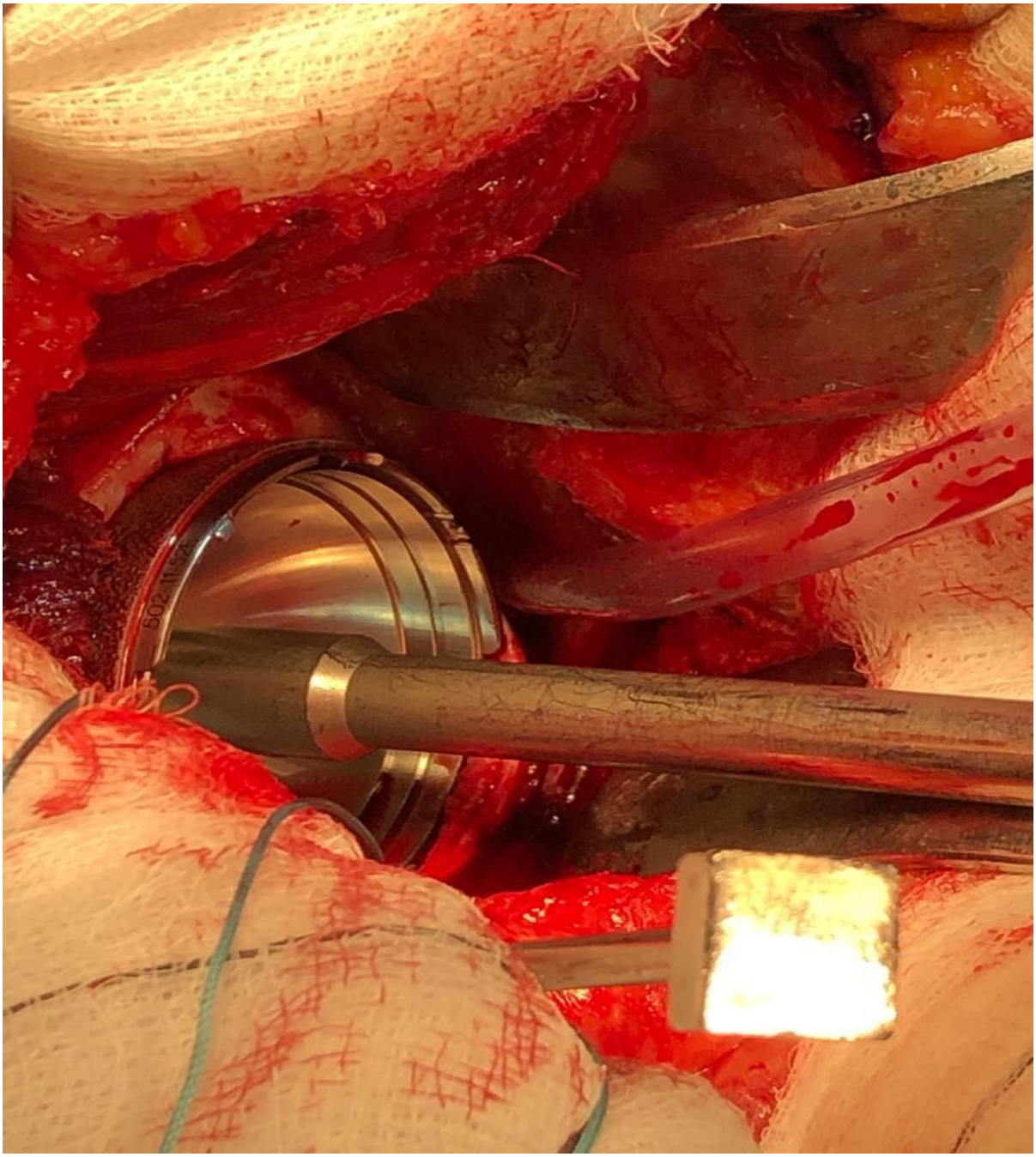


Figure 9. Showing an intraoperative photograph of the implications of positioning the Acetabular Component parallel to the TAL, whereby the component is exposed at the PF.

After reaming, a new Acetabular Component was inserted using the PF as the guide rather than the TAL. A 36mm Ceramic liner was then inserted. A new 36mm ceramic femoral head with a Bioball® adapter (Bioball®Merete GmbH, Berlin, Germany) was then inserted on the retained femoral component and the hip was reduced. Post-operatively she had immediate relief of pain. She was discharge day 1 postoperatively and made an excellent recovery. She is now 3 years since the revision procedure and remains symptom free. The postoperative radiographs taken at a year remain satisfactory (figures 7,8). The lateral view shows a broken drill bit which happened while drilling to create a passage for reattachment of the short external rotators of the hip. This to date has not caused any problems (figure8)

Discussion

The National Joint Registry shows a revision rate of 13% and 7% respectively for single stage and two stage revision for unexplained pain (9). Majority of this could reflect Iliopsoas impingement. It remains a challenge to diagnose the cause of groin pain secondary to iliopsoas impingement as the causes for it are numerous (1). There is limited literature on the outcomes following surgical management of iliopsoas impingement against the acetabular component as shown by Chalmers et al (2). David Beverland (5) showed the importance of using the TAL as a guide for acetabular component positioning. Our cadaveric study has shown that using the TAL can still result in uncoverage of the acetabular component (6). This can result in significant and disabling groin pain. The Acetabular component placement should be more anteverted and not just parallel to the TAL. This allows placement of the component sure inside the PF and therefore inside the bony rim to prevent exposure of its rim.

Our case illustrates what the iliopsoas muscle can do to exposed surfaces of acetabular components. The iliopsoas in this case polished the surface coating off over the years it was exposed to. This indeed can lead to disabling pain. To our knowledge it is first time that we have shown evidence to this effect and the importance of the PF as against the TAL for optimum acetabular component positioning to prevent groin pain.

References

1.Henderson R.A,Lachiewicz P.F. (2012).Groin Pain after replacement of the hip. J Bone Joint Surg (Br);94-B:145–51.

2. Chalmers B. P.; Sculco, P. K. Sierra, R. J.Trousdale, R. T,Berry, D.J.(2017) Iliopsoas impingement after primary total hip arthroplasty: operative and nonoperative outcomes. The Journal of Bone and Joint Surgery (Am): Volume 99 - Issue 7 - p. 557-564

3. Beverland D.E, O'Neill C.K.J, Rutherford M, Molloy D, Hill J.C.(2016). Placement of the acetabular component. Bone Joint J;98-B(1 Suppl A):37–43.

4. Kumar K.H.S, Kutty S.(2021) Relationship between the transverse acetabular ligament and the psoas fossa: Implications for iliopsoas impingement against the acetabular component. A cadaver study . BJJ Orthopaedic Proceedings: Vol103B Suppl;page72.

5. https://reports.njrcentre.org.uk/hips-revision-procedures-patient-characteristics/H20v1NJR?reportid=0C03DE39-568F-4862-A1F4-896C461DDBC9&defaults=DC__Reporting_Period__Date_Range=%22MAX%22,H__JYS__Filter__Calendar_Year__From__To=%22MIN-max%22,H__Filter__Joint=%22Hip%22