

Arthroscopic Piriformis Release to Treatment of Piriformis Syndrome which Occurred After Hip Arthroplasty

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Abstract

This report mentions that offset imbalances of hip arthroplasty could be leading deep gluteal syndrome (DGS) related with neglected piriformis tension and further fibrosis. It could be listed as a late complication after hip replacement surgery. Posterior approach of hip arthroplasty compromised piriformis integrity which is performed tenotomy and then repaired will be leading comorbidity of this situation.

Material And Methods: A 65-year-old male, who underwent bilateral Total hip arthroplasty in 2004, applied to our outpatient clinic with progressive hip and leg pain during sitting which started to complain since 2017.

Piriformis and facet injections and radio-frequency blocks were applied to the patient at least twice. The complaints that increased but could not sit more than 15 minutes then ceased office working forced to retirement.

The patient has not benefited from conservative treatments like injection, block therapy, physical therapy for 6 years. EMG findings of the patient with nonspecific findings on MRI support obturator impingement syndrome.

Surgical Technique: Arthroscopic piriformis release was performed via posterior proximal portal and accessory proximal portal lateral decubitus position or prone position. The piriformis tendon is separated from insertion which is near the gluteus medius neighborhood with a total tenotomy. Neurolysis performed from obturator foramina output to external rotator site.

Result: The patient was mobilized painlessly two hours after the operation. All hip movements were actively free. During the sitting, the pain completely disappeared. The first week he was allowed to work in the office. The exercise was carried out without weight for three weeks, and then we started weight lifting and active resistive exercises. After the tenth day of stretching and ROM exercises, strengthening exercises were made. After the first three weeks of exercise, the pain gradually decreased. In the third and sixth months, the complaints were observed to completely diminish than the patient clinical follow-up was terminated.

Conclusion: Arthroscopic tenotomy and decompression therapy in Piriformis syndrome are safe and effective method. Arthroscopic piriformis release results consistently showed improvement pain and function and lowest incidence of complications. Piriformis should be well evaluated in long-term ipsilateral sciatalgia in patients undergoing hip prosthesis, and arthroscopic tenotomy should be considered a safe option in patients who do not respond to conservative treatment related DGS.

Introduction

Deep gluteal syndrome (DGS) is one of the most misdiagnoses entity characterized by pain and/or dysesthesias in the buttock area, hip or posterior thigh. It is difficult to distinguish radicular pain due to discogenic pain. Actually DGS is a non-discogenic sciatic nerve entrapment in the obturator foramen [1-8].

Accurate calculation of hip prosthesis bone osteotomies, acetabular inclination and anteversion angles, and femoral anteversion is of great importance. Providing soft tissue balance is more difficult than the bone relationship and is very unknown. In this respect, bed and vertical offset balancing should be worked on during preoperative planning. During the surgery, the appropriate neck and head are selected by considering these offset differences. (Figure-1)

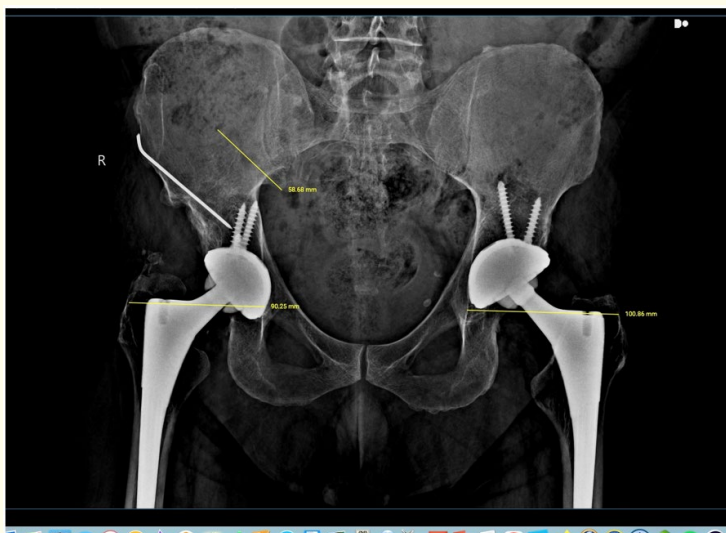


Figure 1: Lateral offset difference related with piriformis tightness leads fibrosis.

Arthroscopic release operations in hip arthroplasty have started to take their place in current treatments in the last ten years. Although the number of publications reporting iliopsoas release for the purpose of relieving thigh pain due to impingement developed after total hip arthroplasty has increased in the literature, we have not yet come across a study in which piriformis release was performed [9, 10].

Case Presentation

A 65-year-old male, who underwent bilateral Total hip arthroplasty in 2004, applied to our outpatient clinic with progressive hip and leg pain during sitting started to complain since 2017.

Piriformis and facet injections and radio-frequency blocks were applied to the patient twice. The complaints that increased but could not sitting more than 15 minutes than deceased office working forced to retirement.

The patient's pain decreased with Gabapentin. He also reported that pain worsening during activity and unable to travel without using Tramadol and neuromodulator drugs. The patient received different treatment methods about six years but no relief pain. EMG and MRI were performed to differentiate obturator syndrome or lumbar radiculopathy. EMG findings of the patient with nonspecific entrapment obturator level and findings of magnetic resonance imaging MRI revealed obturator impingement syndrome under piriformis level. A ten mm horizontal offset difference was clearly measured on the patient's direct radiography. (Figure-1)

The patient was diagnosed piriformis syndrome. Surgical treatment was recommended, involving a comprehensive approach hip arthroscopy through a posterior approach to directly tenotomy of piriformis from trochanteric origin.

Operation Technique

Under general anesthesia, the patient was placed in a decubitus position on the table without traction ensuring proper padding of all pressure points. Following skin preparation and draping, the initial step applying percutaneous K wire insertion to fossa piriformis. under C-arm fluoroscopy guidance. Subsequently, proximal posterior and accessory portals were carried out 30 degrees Endoscope were inserted, during endoscopy to provide bursectomy around K wire than tenotomy performed.

The retracted piriformis muscle fibers were carefully dissected into direction of obturator foramen using a retractor and RF subsequently to reach perineurial structure. The final step is neurolysis with probing and follow nerve to distal extent of the external rotator muscle region and was verified decompression on nerve. (Figure-2) Following the endoscopic decompression procedure, wash out and portal incisions were closed. The total operating time for the procedure was 30 minutes, and the estimated blood loss was approximately 5ml.



Figure 2: Piriformis repaired and reinserted behind the tendinous anatomic originate might be reason of highness.



Figure 3: Piriformis tendon extremely tight.

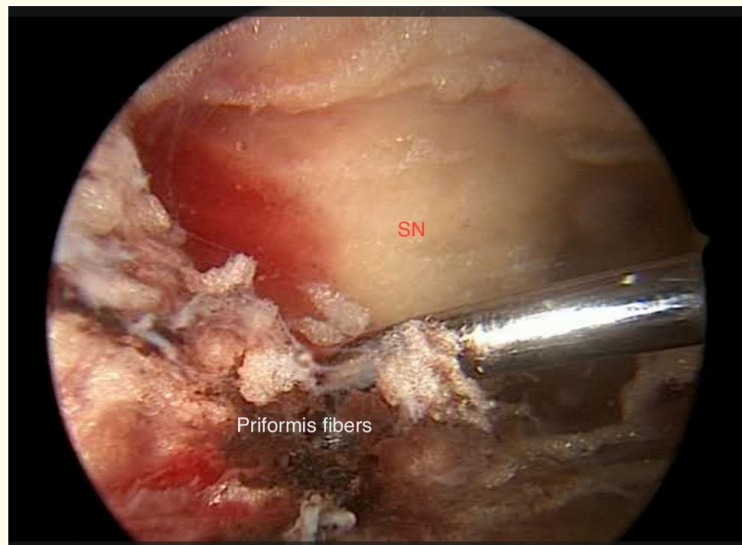


Figure 4: Probing Sciatic Nerve behind the piriformis fiber during release (SN: Sciatic Nerve).

Result

The patient was mobilized painlessly two hours after the operation. Postoperative physical examination showed that significant improvement buttock pain and lower limb numbness, hip movements full range of motion and was actively free. During the sitting, the pain completely disappeared. The patient was able to walk without assistance unlimited distance The first week he was allowed to work in the office. The patient was successfully discharged on the next day after surgery a participated in Physical Therapy rehabilitation program for two weeks.

The exercise was carried out without weight for three weeks, and then we started weight lifting and active resistive exercises. After the tenth day of stretching and ROM exercises, strengthening exercises were made. After the first three weeks of exercise, the pain gradually decreased. In the third and sixth months, the complaints were observed to have gone up and down. At the 6-month follow-up, had healed without any complication patient clinical follow-up terminated.

Discussion

Multiple pathologies have been incorporated in this all-included “piriformis syndrome”, a term that has nothing to do with the presence of fibrous bands, obturator internus/gemellus syndrome, quadratus emoris/ischiofemoral pathology, hamstring conditions, gluteal disorders and [1].

Colomb et al showed that cadaver study were: to assess the reproducibility and quality of endoscopic piriformis tenotomy near the greater trochanter ensures full release of the muscle with a limited risk of neuro-vascular no detect iatrogenic risk [3]. Kay et al reviewed literature concluded that improvement in pain and a low incidence of complications, particularly for endoscopic procedures [4]. Walters et al anatomic findings contribute important qualitative data that build on the recent literature regarding the importance of capsular management during hip arthroscopy to postoperative hip stability [5, 6]. Cooper at all confronted capsular atechmnets of priformis tendon and reported that The piriformis has no capsular contribution instead of, the reflected head of the rectus femoris, gluteus minimus, iliocapsularis, and external rotator tendons all demonstrate consistent capsular adhesions. In our study we did not observe any attachments of priformis and hip capsule [7].

Dezawa et al. used mechanical instruments during endoscopic release, [2] we generally preferred to use Radifrequency until the neurolysis stage. While RF provided bleeding control, it provided a comfortable surgical field. We used mechanical propagation during neurolysis [2, 8]. We did not encounter any findings in cadaver studies that emphasized the relationship between the capsule [3-6] and the separation of the priformis reflecting head. However, we clearly saw that the Gluteus medius attachment pattern is very different from the piriformis capsule attachments like Cooper’s results [6]. For this reason, we did not encounter any instability that would occur with capsilotomy while protecting the medius muscle by avoiding loosening at the capsule level [8].

Conclusion

Arthroscopic tenotomy and decompression therapy in Priformis syndrome are safe and effective. Although most of the studies reported that open surgical release or even endoscopic semi open techniques, there have been some neuropathic in the literature, Arthroscopic priformis release results consistently showed improvement pain and function and lowest incidence of complications. Piriformis should be well evaluated in late-term ipsilateral sciatalgia in patients undergoing hip prosthesis, and arthroscopic tenotomy should be considered a safe option in patients who do not respond to conservative treatment related DGS.

These findings lend credence to Arthroscopic priformis tenotomy as a viable option for the pain caused by deep gluteal syndrome as a long term complication of Total Hip Arthroplasty.

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