



Greater trochanter bursitis pain syndrome in females with chronic low back pain and sciatica

Fares SAYEGH, Michael POTOUPNIS, George KAPETANOS

From the Aristotle University of Thessaloniki, Greece

Trochanteric bursitis is a clinical condition which simulates major hip diseases and low back pain, it may also mimic nerve root pressure syndrome. Patients with greater trochanteric bursitis pain syndrome (GTBPS) usually suffer from pain radiating to the posterolateral aspect of the thigh, paraesthesiae in the legs, and tenderness over the iliotibial tract. The purpose of this study is to indicate the similarity between the clinical features of the GTBPS and those of chronic low back pain, and to highlight the importance of diagnosing GTBPS in patients complaining of low back conditions. Three hundred female patients were included in this prospective study. All patients complained about chronic low back pain or sciatica and had a failed long term conservative treatment. Local injection of the tender peritrochanteric area was only done in half of the patients (group 1). Patients were required to answer the Oswestry Disability Index Questionnaire during all periods of follow-up. Patients of group 1 had a better clinical outcome ($p < 0.0005$) than the patients in group 2 where no injection was done.

We conclude that greater trochanter bursitis pain syndrome is a frequent syndrome which may be associated with low back symptoms. Patients with a long standing history of low back pain and sciatica should be routinely checked for GTBPS. GTBPS is easy to diagnose and can be treated. Peritrochanteric infiltration with glucocorticoids mixed with 2% lidocaine relieves patients from their symptoms for a long period of time. Recurrence should always be expected, but treatment may be repeated.

INTRODUCTION

Trochanteric bursitis was originally reported in literature in the early thirties. LeCocq (13) was the pioneer when he described a case of peritrochanteric bursitis, and since then several studies (1, 4, 11, 16, 17, 19) describing the main features of trochanteric bursitis have been done. Goldenberg and Leventhal (10) attributed the pain and disability of the hip to the calcified deposits in the region of the greater trochanter. Their diagnosis was mainly made from radiographs, and the only cure according to them was the surgical removal of the calcified deposits.

Leonard (14) described the trochanter bursitis syndrome as tenderness and pain in the region of the greater trochanter that often radiates down to the posterolateral aspect of the thigh. Gordon (11) in 1961 raised the question of the association of this

■ Fares E. Sayegh, MD, Orthopaedic Surgeon.

■ George A. Kapetanos, MD, Professor.

Department of Orthopaedic Surgery. General District Hospital Papageorgiou, Thessaloniki, Greece.

■ Michael Potoupnis, MD, Orthopaedic Surgeon.

Department of Orthopaedic Surgery. 424 General Army Hospital, Thessaloniki, Greece.

Correspondence : Fares Sayegh, 16 Ethnikis Amynis street, 546 21 Thessaloniki, Greece. E-mail : fares1@otenet.gr.

© 2004, Acta Orthopædica Belgica.

condition with other diseases of the hip or spine. Collée *et al* (4) concluded that the greater trochanteric bursitis syndrome may mimic nerve root compression and is easy to differentiate from low back patients purely on clinical grounds.

The purpose of this prospective study is to highlight the importance of diagnosing GTPS in female patients complaining of low back pain and sciatica. This study also shows that treatment of GTPS could improve and relieve certain patients from most of their low back symptoms.

PATIENTS AND METHODS

Between the years 1992 and 1997, 25 300 patients were examined at the orthopaedic outpatient clinics. Sixty one percent of the patients were females (15 433 patients). Of those, 4 058 (26.3%) were complaining of chronic low back symptoms and/or pain radiating to the lower extremities. Three hundred female patients (7.4% of the female population presenting with low back symptoms, and 1.18% of the general population) were included in this study. Those patients were found to suffer from GTPS associated with low back pain and/or sciatica. All those patients had been seen repeatedly by other orthopaedic surgeons and complained of failed long-term conservative therapy. Only 23 male patients (0.1% of the general population) were found to suffer from GTPS and were not included in this study.

The age of the patients ranged from 24 to 84 years with an average of 49.6 years. There were 67 patients (22.3%) presenting with low back pain symptoms only, and 233 patients (77.7%) suffering from low back pain as well as leg pain. Thirty eight of those patients (12.6%) had accompanying leg paraesthesiae. The duration of symptoms ranged from 4 to 624 weeks with an average of 7.1 weeks. Patients with severe osteoarthritis of the hips, knees, previous spine surgery, or low back pain as a part of widespread musculo-skeletal pain were not included in this study. None of the patients included in this study had participated in any previous similar study. Additionally, all patients were fully informed and consented to the purposes of this study.

The study was based mainly on clinical evaluation of the patients and no radiological or laboratory examinations were performed. In spite of this, 272 patients (90.6%) had with them on their first visit radiographs of the lower spine, and 102 (34%) patients had a radiograph of the pelvis. Radiographs of the spine showed

mild to severe spondyloarthritis in 216 patients (79.4%). Minimal soft tissue calcification over the upper third and tip of the greater trochanter was seen in 23 radiographs of the pelvis (22.5%).

Moreover, 42 (14%) patients had available CT scans of the lumbar spine. No true picture of nerve root compression was noted. Osteoarthritis of the facet joints and mild bulging of the intervertebral discs were seen. There were also 82 (27.3%) available bone mass density examinations of the lower lumbar spine. Loss of bone mass density, ranging from 2% to 34%, was seen in all of the tests. Examination of the hips, knees, posture, spinal movements were carried out on all patients. Neurological examination as well as systematic deep palpation of the lumbar area, gluteal muscles, and bilateral trochanteric areas was performed. Reproduction of pain at extremes of rotation, abduction, and adduction of the hip joints were also carried out. Deep palpation of the greater trochanter area to seek local tenderness over the tip or just proximal and dorsal to the trochanter was done with the patient positioned in a lateral recumbent position with the affected side uppermost and the hips and knees slightly flexed. Typical local tenderness, as was described by Collee *et al* (4), was defined as an area of localised maximal tenderness, reproducible and recognized by the patient as a characteristic pain. Patients with tenderness or reproducible pain over the greater trochanter were randomly assigned to two study groups. They were alternatively put in either group 1, which was given a local peritrochanteric infiltration of 1 ml of glucocorticoid mixed with 3 ml of 2% lidocaine, or in group 2, where no peritrochanteric injection was administered.

All patients were asked to answer the Oswestry Disability Index questionnaire (O.D.I.) (8) on the first clinical examination, and after one month, 6, 12, 24, 36 and 48 months successively. The Oswestry Disability Index Questionnaire (8) is a validated questionnaire based on 10 stem questions. Each question is followed by 6 mutually exclusive items, covering aspects of daily living which may be affected by back pain. The Kruskal-Wallis and the Mann-Whitney U tests were used to analyze the available data.

RESULTS

Clinical examination of the passive movements of hips and knees was normal. Examination of the lower lumbar spine showed 212 patients (70.7%) with tender lower spine. All patients had normal

posture and normal spine movements. Straight leg raising in all patients was 90° bilaterally. No neurological deficits consistent with root involvements were noted.

All patients (100%) had tenderness or reproducible pain around the trochanter area upon deep palpation of both hips. Forty three patients (14.3%) had bilateral peritrochanteric pain or tenderness and only 26 of these patients were included in group 1. Those patients received simultaneously bilateral injection of the peri-trochanteric areas. All patients recognized their typical characteristic pain upon deep palpation of the greater trochanter, but also noted that this specific examination had not been performed during previous clinical examinations.

The Oswestry Disability Index percentage score of day 1 in group 1, where a peritrochanteric injection was given, showed a very high score and in turn a very high disability percentage score (68.9%) (table I, III). This high percentage of disability fell sharply over the post-injection follow-up periods which reached up to 4 years in some patients (table III).

In group 2 where no peritrochanteric injection was performed, the Oswestry index score as well as the percentage of disability was steadily high in all periods of follow-up (table II, III). Moreover when the available data of day 1 in group 1 was compared with the available data of all the subsequent follow-up post-injection periods of the same group, there was a very high significant difference

Table I. — Oswestry Index Score in group 1

	day 1	1 month	6 months	1 year	2 years	3 years	4 years
Pain	4.6	0.1	0.1	0.2	0.4	1.4	2.3
Care	3.2	0.2	0.3	0.4	0.1	0.7	0.9
Lifting	3.6	0.3	0.4	0.5	1.0	1.5	2.6
Walking	4.0	0.2	0.2	0.2	0.5	1.4	2.8
Sitting	3.1	0.1	0.2	0.2	0.6	1.6	2.2
Standing	4.0	0.3	0.2	0.3	1.0	1.7	2.6
Sleeping	3.4	0.2	0.3	0.2	0.5	1.6	2.5
Social Life	2.3	0.1	0.3	0.3	0.2	1.3	1.8
Travelling	2.8	0.2	0.3	0.3	0.4	0.8	1.0
Oswestry Index Score	31.0	1.7	2.3	2.6	4.7	12.0	18.7

Table II. — Oswestry Index Score in group 2

	Day 1	1 month	6 months	1 year	2 years	3 years	4 years
Pain	4.6	3.9	4.3	4.4	4.2	4.5	4.3
Care	3.2	2.8	3.1	3.2	3.0	3.1	3.0
Lifting	4.3	4.0	4.2	4.4	4.2	4.3	4.4
Walking	4.1	4.0	4.3	4.3	4.1	4.3	4.2
Sitting	3.7	3.5	3.6	3.6	3.3	3.8	3.4
Standing	4.3	3.9	4.3	4.2	4.4	4.2	4.0
Sleeping	3.7	3.3	3.6	3.7	3.7	3.7	3.6
Social Life	3.3	2.9	3.2	3.2	3.3	3.3	3.1
Travelling	3.6	2.9	3.4	3.6	3.4	3.4	3.4
Oswestry Index Score	34.8	31.2	34.0	34.6	33.6	34.6	33.4

Table III. — Oswestry disability index percentage score (O.D.I.)

	day 1	1 month	6 months	1 year	2 years	3 years	4 years
Group 1	68.9	3.8	5.1	5.8	10.4	26.7	41.6
Group 2	77.3	69.3	75.5	76.8	74.6	76.8	74.2

$$** O.D.I = \frac{\text{Sum of items scored}}{\text{Sum of sections answered}} \times 20\%$$

Good result = % disability score < 30%

between the different scores ($p < 0.0005$). The percentage of disability in patients who have had two simultaneous injections of the hips was also equally decreasing over the periods of follow-up.

On the contrary, in group 2 the percentage disability score remained high in all periods of follow-up (table II, III). There was no significant difference in the disability scores of group 2 throughout all the periods of follow-up ($p = 0.1-0.9$). There was also no significant difference in the disability score of day 1 in group 1 when compared to all follow-up periods in group 2 ($p = 0.1-0.3$). Moreover, when the disability percentage scores of the post-injection follow-up periods in group 1 (1 month to 4 years) were compared with the scores of follow-up periods in group 2 (1 month to 4 years) there was a highly significant difference between both groups ($p < 0.0005$). There was no significant difference in scores throughout all periods of follow-up between all age groups in group 1 as well as group 2 ($p = 0.1-0.7$).

DISCUSSION

Many authors believe that greater trochanter bursitis pain syndrome is not rare, and it is often overlooked or frequently misdiagnosed as other disease (4, 11, 12, 14). The greater trochanter bursitis pain syndrome is considered to be prevalent in the female population (4, 16). Most studies confirm the preponderance of females, but the number of patients referred in those studies is small. Rasmussen *et al* (16) had only 36 cases with trochanteritis, 29 of which were females. Shapira *et al* (17) examined only 72 patients (24 men and 48 women), and Karpinski *et al* (12) had only

15 cases (11 women and 4 men). The present study is the only one that included a large number of female patients that suffered from low back problems associated with GTBPS. All patients were referred to the outpatient back clinic with chronic low back pain or sciatica because they were repetitively and unsuccessfully treated conservatively. Moreover, this study showed that there is a prevalence of 1.18% in the general female population that suffer from GTPS associated with low back symptoms.

A review of the recent orthopaedic literature revealed few reports or references that deal with this pathology or describe adequately this condition and its possible co-occurrence with other diseases. This may explain why many clinical examiners such as orthopaedic surgeons are not aware of this pathologic condition; standard orthopaedic textbooks (2, 7) describe trochanteric bursitis very briefly. Finally, over the last 15 years, there has been only one paper written by orthopaedic surgeons (12) describing the greater trochanter pain syndrome. Other clinical problems that should also be considered in the differential diagnosis of patients presenting with acute hip pain are reported in literature. Tendinopathy and spontaneous rupture of the gluteus medius and minimus tendons could be clinical sources of hip pain and should be seriously considered by orthopaedic surgeons as a differential diagnosis (3, 5, 6, 9, 15).

The present report claims that the diagnosis of GTBPS in patients with a long-standing history of low back pain or sciatica is easy to make. This can be achieved if all patients with low back symptoms are routinely checked for tenderness or reproducible pain around the trochanter areas of both hips. The

examiner should always be aware not to misinterpret the spontaneous local hip complaints as hip osteoarthritis that may result in a total hip arthroplasty.

Based on the findings in this study, we do not agree with the early literature (1, 10, 11, 14) that the diagnosis of trochanteric bursitis can be made only with radiographs of the hips, nor that the only cure for this condition is the surgical removal of the calcified deposits in the region of the greater trochanter. In this study patients who had minimal calcifications over the tip of the trochanter and were injected over the greater trochanter had considerable relief from their symptoms.

The present study compares the results of simple local peritrochanteric infiltration of glucocorticoid in 150 patients with GTBPS to the results of another group of 150 patients with GTBPS who did not have a peritrochanteric infiltration. The Oswestry Index Questionnaire (5), a validated test for low back patients, was used to assess those results. A high Oswestry Index score was noted on day 1 in both groups reflecting the high degree of disability in those referred patients. One month post-injection, there was a significant fall of the percentage of disability of group 1 which continued over a long period of time. By contrast, in group 2, where no peritrochanteric injection was performed, the percentage of disability was always high and it did not change in all periods of follow-up. This study agrees with recent reports that the diagnosis of GTBPS could be made on pure clinical criteria and that local infiltration of the tender peritrochanteric area with glucocorticoid mixed with lidocaine may be curative (17, 18). Moreover, patients with bilateral GTBPS who were injected showed improvement in their low back symptoms. We also believe that the cure from the GTBPS symptoms is not always definitive. Recurrence should be expected, but treatment may be repeated.

CONCLUSIONS

1. Greater trochanter bursitis pain syndrome is a frequent syndrome and may be associated with low back symptoms.
2. Trochanteric bursitis may masquerade a low back condition, and therefore, all patients with a long standing history of low back pain and sciatica should be routinely checked for GTBPS.
3. Trochanteric bursitis may cause local pain around the hip joint. Such spontaneous local complaints may be easily misinterpreted as hip osteoarthritis that may result in overtreatment such as a total hip arthroplasty. Therefore, in order to avoid an unpleasant result, a careful examination of the hip joint should always be done.
4. Deep palpation for pain or tenderness around the trochanteric area is often overlooked as a clinical examination by many examiners ; it should be a part of a systematic examination of the spine.
5. The diagnosis can be made on purely clinical criteria without the use of radiological or laboratory means.
6. GTBPS is easy to diagnose and to treat. Peritrochanteric infiltration with glucocorticoids mixed with 2% lidocaine relieves patients from their symptoms for a long period of time. Recurrence should be expected, but treatment may be repeated.

REFERENCES

1. **Anderson TB.** Trochanteric bursitis : diagnostic criteria and clinical significance. *Arch Phys Med Rehabil* 1958 ; 39 : 617-622.
2. **Apley AG.** *Solomon L Apley's System of Orthopaedics and Fractures.* 6th ed. Butterworth scientific, London 1982 ; p 479.
3. **Bunker TD, Esler CN, Leach WJ.** Rotator-cuff tear of the hip. *J Bone Joint Surg Br* 1997 ; 79 : 618-620.
4. **Collée G, Dukmans BAC, Vandenbroucke JP.** Greater trochanter pain syndrome (trochanteric bursitis) in low back pain. *Scand J Rheumatol* 1991 ; 20 : 262-266.
5. **Connell DA, Bass C, Sykes Ca, Young D, Edwards E.** Sonographic evaluation of gluteus medius and minimus tendinopathy. *Eur Radiol* 2003 ; 13 : 1339-1347.
6. **Cvitanić O, Henzie G, Skezas N, Lyons J, Minter J.** MRI diagnosis of tears of the hip abductor tendons (gluteus medius and gluteus minimus). *AJR* 2004 ; 182 : 137-143.
7. **Duthie RB, Bentley G.** Trochanteric bursitis (subgluteal bursa). In *Mercer's Orthopaedic Surgery.* 8th ed. Edward Arnold, London. 1983 ; p 710.
8. **Fairbank JCT, Davies J, Couper J, O'Brien JP.** Oswestry disability questionnaire. *Physiotherapy* 1980 ; 66 : 271-273.

9. **Gabrion A, Vernois J, Havet E, Mertl P, de Lestang M.** Gluteus medius tendon tear and degenerative hip disease. *Rev Chir Orthop* 2003 ; 89 : 640-642.
10. **Goldenberg RR, Leventhal GS.** Supratrochanteric calcification. *J Bone Joint Surg* 1936 ; 18 : 205-214.
11. **Gordon EJ.** Trochanteric bursitis and tendinitis. *Clin Orthop* 1961 ; 20 : 193-202.
12. **Karpinski MRK, Piggott H.** Greater trochanteric pain syndrome. A report of 15 cases. *J Bone Joint Surg* 1985 ; 67-B : 762-763.
13. **Le Cocq E.** Peritrochanteric bursitis. *J Bone Joint Surg* 1931 ; 13 : 872-873.
14. **Leonard MH.** Trochanteric syndrome : calcareous and non calcareous tendinitis and bursitis about the trochanter major. *J Am Med Assoc* 1958 ; 168 : 175-177.
15. **Lonner JH, Van Kleunen JP.** Spontaneous rupture of the gluteus medius and minimus tendons. *Am J Orthop* 2002 ; 31 : 579-581.
16. **Rasmussen KJE, Fanø N.** Trochanteric bursitis. Treatment by corticosteroid injection. *Scand J Rheumatol* 1985 ; 14 : 417-420.
17. **Schapira D, Nahir M, Scharf Y.** Trochanteric bursitis : A common clinical problem. *Arch Phys Med Rehabil* 1986 ; 67 : 815-817.
18. **Shbeeb MI, O'Duffy JD, Michet CJ Jr. et al.** Evaluation of glucocorticosteroid injection for the treatment of trochanteric bursitis. *J Rheumatol* 1996 ; 23 : 2104-2106.
19. **Swezey RL.** Pseudo-radiculopathy in subacute trochanteric bursitis of subgluteus maximus bursa. *Arch Phys Med Rehabil* 1976 ; 57 : 387-390.