CASE REPORT

Fluoroscopic-guided supra-scapular nerve block in the management of shoulder pain in a Nigerian Teaching Hospital: Report of five cases

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ABSTRACT

Shoulder pain complaints are common in our environment. The disorder can occur among the young active age group or in the older patients as a result of degenerative changes with its attendant limitations of the function of the affected upper limb, hindrance of the performance of activities of daily living, and reduced quality of life. The traditional oral analgesics, physiotherapy, and intra-articular corticosteroid injections are seldom ineffective at providing the desired pain relief and functional improvement at the shoulder joint. We investigated the role of fluoroscopic-guided supra-scapular nerve blocks (SSNBs) in patients with shoulder pain who failed to respond to the routine conservative management. With the patient lying prone and the C-arm fluoroscope placed in anterior-posterior position, the scapula notch was visualized and a 22G spinal needle was directed toward the nerve. The mixture of local anesthetic agent and steroid was injected as close to the nerve as possible after negative aspiration. Fluoroscopic-guided SSNB can produce substantial pain relief and improved range of movement in patients with painful shoulders. The procedure is safe, well tolerated, and can be done on a day-case basis.

Key words: Fluoroscopic-guided, Nigeria, shoulder pain, steroid injection

INTRODUCTION

Chronic shoulder pain is a common condition in Nigeria.[1] The prevalence of shoulder pain in adults is estimated to be between 15% and 30%[2] with an estimated incidence of 24 episodes for every 1000 patients in general practice. About 50% of the population will present to primary care physicians with at least an episode of shoulder pain syndrome annually.[3] A study has revealed that adhesive capsulitis is the most common cause of shoulder pain in Nigeria and 1 in 5 patients with diagnosed diabetes mellitus had adhesive capsulitis.[1] More often than not, injury is the most easily diagnosed cause of shoulder pain. Other possible causes of shoulder pain include degenerative disease affecting the glenohumeral and acromioclavicular joints and supporting soft tissue structures, and inflammatory diseases such as rheumatoid arthritis.

The current treatment modalities for shoulder pain in our center are physiotherapy, nonsteroidal anti-inflammatory drugs (NSAIDs), and intra-articular steroid injections with less than satisfactory outcomes in the majority of cases. This apparent ineffectiveness of the existing intervention usually results in loss of some of the patients to follow-up and this prompted the introduction of supra-scapular nerve block for treating shoulder pain in our facility.

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CASE REPORTS

Case 1

A 63-year-old male police officer was referred to our Pain and Palliative Care Unit by orthopedic surgeons with 5 months history of right shoulder pain and associated restricted shoulder range of movements; abduction and flexion. The patient was diagnosed of partial rotator cuff tear and was unresponsive to NSAIDs and intra-articular steroid injection.

Case 2

A 64-year-old male, retired bank executive, presented with a 2-year history of right shoulder pain and neck pain. The neck pain was significantly relieved following ingestion of the prescribed oral pregabalin with no effect on the shoulder pain. There was associated restricted shoulder abduction with external rotation and aggravation of pain on attempting to abduct the shoulder beyond 70° from the neutral position.

Case 3

A 66-year-old, retired surveyor and an active squash player, presented with 14 months history of left shoulder pain that failed to respond to conservative treatment and intra-articular steroid injection. The pain prevented him from his routine leisure squash playing due to the progression and worsening of the shoulder pain.

Case 4

A 68-year-old, retired university don, being managed for bilateral knee arthritis with involvement of the right shoulder. The duration of the shoulder pain before the presentation was 18 months for which he was commenced on NSAIDs that resulted in gastrointestinal tract symptoms despite the provision of little benefit and he stopped taking the medications.

Case 5

A 69-year-old elderly woman presented to our unit with 3 years history of left shoulder pain and inability to wear her clothes and to scrub her back while taking her bath. The prescribed physiotherapy, intra-articular steroid injection, and NSAIDs offered her little assistance and she was counseled and consented for this intervention.

Description of the procedure

With the patient lying prone, the C-arm fluoroscope was positioned anterior-posterior over the affected shoulder until scapular notched became visible. A 22G spinal needle was directed toward the supra-scapular nerve and mixture of steroid and local anesthetic (LA) agent was deposited close to the nerve following negative aspiration [Figure 1].

Figure 1: Fluoroscopic image of the supra-scapular nerve block injection. The needle is directed over the spine of the scapular and downward into the supra-scapular fossa. Bupivacaine 5 ml and 2 ml (80 mg) of triamcinolone acetonide are injected into the supra-scapular fossa

After the procedure, three males had complete pain relief with the restoration of normal shoulder movement. The only female and the last male admitted to at least two-point pain intensity reduction from the preintervention NRS of ≥6 with moderate pain, experienced shoulder abduction. The three males and the two remaining patients expressed complete and significant satisfactions, respectively, with the treatment. However, two male patients complained of intermittent short-lived shooting sensations, similar to the primary pain, on the inner part of the affected arm.

DISCUSSION

Our study showed that fluoroscopic-guided supra-scapular nerve block (SSNB) reduced the pain intensity and improved the range of movement at the shoulder joints in patients with chronic shoulder pain. SSNB nerve using anatomical landmarks may fail; pneumothorax and neurovascular injury can occur due to the proximity of the nerve to apices of the lungs and the potential variability in the position of the nerve and its depth. Thus, we used C-arm fluoroscope to ensure precise deposition of the medication on the nerve and reduced potential complications of pneumothorax and neurovascular injury. However, a study had shown a low incidence of complication when the nerve was blocked using anatomical landmark.[4] The findings from our study are comparable with the outcomes of other researchers in terms of pain relief and improvement in upper limb functions.[5-10] Di Lorenzo *et al*.[5] investigated the effect of combining the indirect SSNB with early rehabilitation in patients with rotator cuff tendinitis. They found that patients who received SSNB with 8-10 ml of steroid/local analgesic combinations experienced decreased severity and frequency of the perceived pain, improves the compliance with the physiotherapy, restored more normal sleep pattern, and improved

the compliance with the rehabilitation program. Our findings are also consistent with the results of the previous studies that showed improvement in early outcome following SSNB with corticosteroid injections in shoulder capsulitis.[6]

El-Badawy[7] determined the efficacy of SSNB on hemiplegic shoulder pain and the author concluded, as we established in our study that the intervention was safe and effective in providing pain relief and improved range of motion at the painful shoulder joint in stroke patients. Similarly, our results agreed with the findings of several studies[8,9] that SSNB offered faster and better pain relief as well as improved upper limb functions when compared with the placebo treatments.

Contrary to the duration of pain relief in the previous studies, the pain relief lasted for at least 6 months in about 60% of patients treated in our study. This prolonged pain relief could be explained by the assertion that the mixture of LA and steroid can cause temporary blockade of nociceptive impulses from the shoulder to the central nervous system.[10]

This study highlighted the role of SSNB in the management of shoulder pain to relief pain as well as facilitating the compliance of patients with the prescribed shoulder exercises.

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Conflicts of interest

There are no conflicts of interest.

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