Computed Tomography-Guided Facet Synovial Cyst Aspiration

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Abstract

Lumbar facet joint cysts are the benign collections of fluid at or around the facet joints, which may lead to pain and radicular symptoms. They may be associated with spinal stenosis, nerve root compression, neurogenic claudication, and many other neurological disturbances, as they can encroach on the adjacent neural foramen. Although the recommended treatment is surgical excision, percutaneous interventions provide an effective, acceptable, and safe alternative that may be considered. Hereby, we present the case of a 78-year-old patient known diabetic, hypertensive, and with deranged renal function, with left-sided L5 radiculopathy due to an L4-5 facet synovial cyst. He was treated through computed tomography (CT)-guided percutaneous aspiration and got long-term relief. The technique we used was different from the regular facet cyst aspiration, and the precision offered by CT guidance helped us provide optimum treatment leading to long-term relief. Thus, tailor-made treatment options rather than standard protocols for all patients allow a better risk–benefit ratio, in the field of pain management.

Keywords: Computed tomography-guided aspiration, facet cyst, facet cyst aspiration, percutaneous aspiration

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Introduction

Lumbar facet joint cysts (LFJCs) are the benign collections of fluid at or around the facet joints, which may lead to pain and radicular symptoms. These cysts usually arise due to chronic hypermobility and friction at the lumbar zygapophyseal joints, which are synovial joints.[1,2] The LFJCs are associated with spinal stenosis, nerve root compression, neurogenic claudication, and many other neurological disturbances, as they can encroach upon the adjacent neural foramen.[3,4] Accurate diagnosis of this condition through computed tomography (CT) or magnetic resonance imaging (MRI) scanning can be done. Most LFJCs require treatment, and they rarely resolve spontaneously. Although the recommended treatment is surgical excision, percutaneous interventions provide an effective, acceptable, and safe alternative that may be considered. In older and high-risk patients, it could be the preferred option.[5] We present the case of a 78-year-old patient with left-sided L5 radiculopathy due to an L4-5 facet synovial cyst, who was treated through CT-guided percutaneous aspiration and got long-term relief.

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Case Report

A 78-year-old male patient visited our outpatient department with pain in the left buttock, radiating down the back of his thigh, and the outer side of his leg for about a year. He was a known diabetic and hypertensive with deranged renal function. He had undergone conservative management in the form of medication, physiotherapy, bed rest, and traction, with minimal short-term relief. The radiating pain was getting severe with time. On examination, the straight leg raise (SLR) test was positive at 60°. Furthermore, facet loading tests were positive. We suspected it to be an L4-5 disc prolapse along with facet arthropathy. We advised him an MRI of the lumbosacral spine and prescribed him neuropathic pain medicines.

His MRI report showed a facet cyst at L4-L5 level encroaching upon the left traversing L5 nerve root.

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Considering his age, comorbidities, and reluctance for surgery, we posted him for a CT-guided facet cyst aspiration. Basic laboratory investigations including a complete blood count, coagulation profile, and infection profile were done, which were within normal limits. He was taken into the CT suite and prone position was given after securing an intravenous line and prophylactic antibiotic was given. A screening scan was performed and left-sided L4-L5 facet synovial cyst was visualized [Figure 1]. With a 23G needle, we tried to enter the cyst through the L4-L5 facet joint, however, we were unable to advance the needle further [Figure 2]. We then injected 0.1 mL of intrafacetal-iodinated contrast injection through the facet needle that we had inserted, which resulted in partial opacification of the cyst, outlining the cyst [Figure 3]. Aspiration of the cyst was then performed with 18G spinal needle inserted separately [Figure 4]. Once the needle tip was confirmed within the cyst, 0.5 cc viscous fluid was aspirated from the cyst [Figure 5]. Collapse of the cyst with minimum air was seen within the cyst postaspiration. The area of contact with the traversing left L5 nerve root was seen to be reduced postaspiration [Figure 6]. A residual cyst was, however, seen in the postprocedure check scan, which was explained to the patient and relatives. Postprocedure SLR showed significant improvement. On the long-term follow-up of 2 years, the patient is pain-free.

Discussion

With increasing life expectancy, LFJCs are increasingly being reported as a cause of lumbar radiculopathy, lower back pain, and neurological deficits. The evaluation of the literature suggests surgical interventions to be advantageous over percutaneous aspiration, as treatment for LFJCs.[6] However, treatment needs to be tailored as per each individual, balancing the benefits with the risks. Although chances of recurrence after percutaneous aspiration do exist, surgical excision is time-consuming, expensive, and still not risk-free.[7] In our case, considering comorbidities such as diabetes, hypertension, and deranged renal function, surgery posed a high risk and percutaneous intervention was chosen. CT scan greatly increases the accuracy of needle insertion, providing an alternative route of aspiration as seen in our case. We were

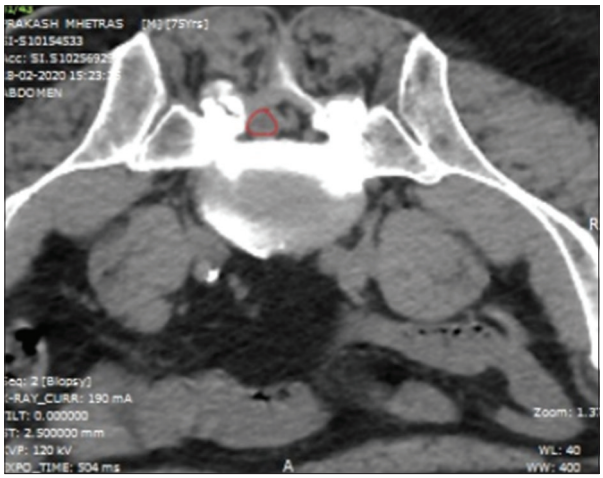

Figure 1: Screening computed tomography scan showing left L4-5 facetal cyst (outlined in red)

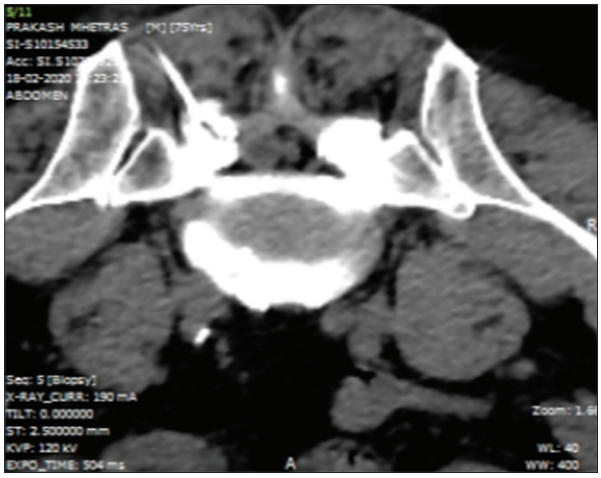

Figure 2: Needle entry into left L4-5 facet joint

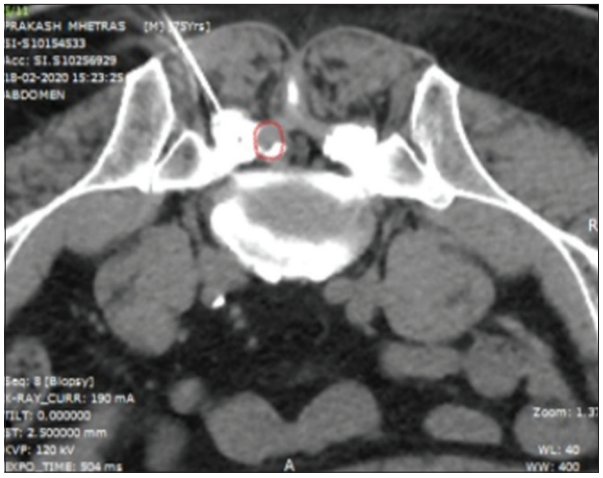

Figure 3: Dye injected – facet cyst delineated (marked in red)

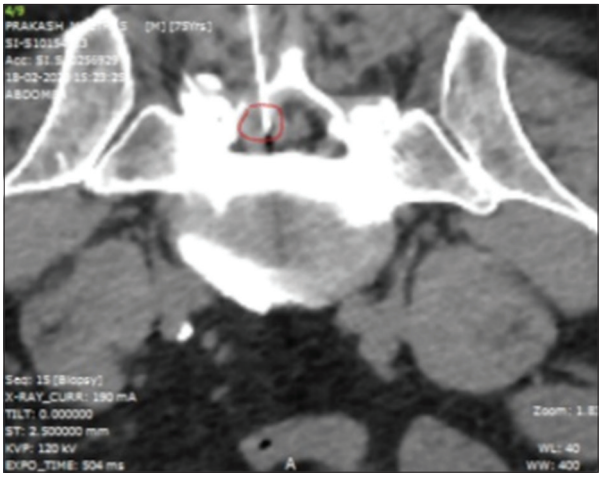

Figure 4: Second needle inserted (cyst outlined in red)

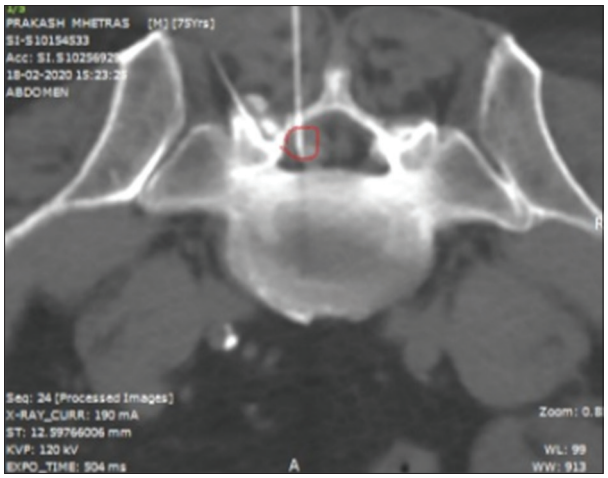

Figure 5: Cyst aspirated through 2nd needle (cyst outlined in red)

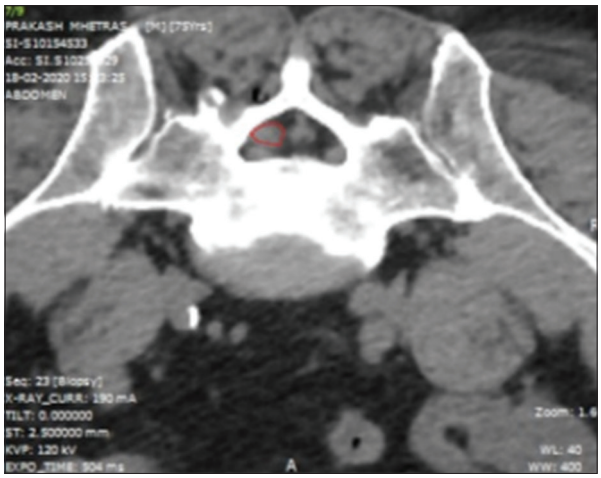

Figure 6: Collapsed residual cyst seen. (Cyst outlined in red) note the reduced contact area with the traversing L5 nerve root

unable to enter the cyst through the facet joint, which we were able to visualize on CT scan. Injecting a minimum amount of dye outlined the cyst beautifully, and guided us in percutaneous aspiration through different needle entries. Furthermore, we were able to visualize the reduced area of contact of the cyst with the traversing nerve root. Although the cyst persisted after aspiration, due to the freeing up of the nerve root, symptoms were relieved. The patient and relatives were explained and counseled regarding the chances of recurrence, the advantages of percutaneous aspiration, and the projected need for surgery if symptoms recurred.

Conclusion

Percutaneous facet cyst aspiration under CT guidance provided a safe, accurate, and effective method of treatment in our patient who was high risk for surgery due to several comorbidities. Although evidence suggests surgery to be the preferred option for the treatment of facet cysts, we should consider the risk–benefit ratio and offer the optimal treatment tailored as per the patient's condition and choice.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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