



# Surgical Excision for Refractory Ischiogluteal Bursitis: A Consecutive Case Series of 21 Patients

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**Purpose:** A response to conservative treatment is usually obtained in cases of ischiogluteal bursitis. However, the time required to achieve relief of symptoms can vary from days to weeks, and there is a high recurrence rate, thus invasive treatment in addition to conservative treatment can occasionally be effective. Therefore, the aim of this study was to examine surgical excision in cases of refractory ischiogluteal bursitis and to evaluate patients' progression and outcome.

**Materials and Methods:** A review of 21 patients who underwent surgical excision for treatment of ischiogluteal bursitis between February 2009 and July 2020 was conducted. Of these patients, seven patients were male, and 14 patients were female. Injection of steroid and local anesthetic into the ischial bursa was administered at outpatient clinics in all patients, who and they were refractory to conservative treatment, including aspiration and prescription drugs. Therefore, surgery was considered necessary. Excisions were performed by two orthopedic specialists using a direct vertical incision on the ischial area. A review of each patient was performed after excision, and quantification of the outcomes recorded using clinical scoring systems was performed.

**Results:** The results of radiologic evaluation showed that the mean lesion size was 6.2 cm×4.5 cm×3.6 cm. The average disease course after excision was 21.6 days (range, 15-48 days). Measurement of clinical scores, including the visual analog scale and Harris hip scores, was performed during periodic visits, with scores of 0.7 (range, 0-2) and 98.1 (range, 96-100) at one postoperative month, respectively.

**Conclusion:** Surgical excision, with an expectation of favorable results, could be considered for treatment of ischiogluteal bursitis that is refractory to therapeutic injections, aspirations, and medical prescriptions, particularly in moderate-to-severe cases.

**Key Words:** Ischiogluteal bursitis, Surgical excision

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## INTRODUCTION

Ischiogluteal bursitis (ischial bursitis) is an inflammation of the bursa, which is located between the ischial tuberosity and gluteus maximus muscle<sup>1</sup>. Its previous name, “weaver’s bottom,” implies the characteristics of the disease<sup>2</sup>. Its occurrence was first reported in a working environment where workers were required to sit on a hard floor for long periods of time; although varying clinical manifestations have recently been reported, it is known to occur predominantly in situations involving common application of persistent pressure to the ischium<sup>3</sup>. However, diagnosis

of ischiogluteal bursitis based exclusively on specific clinical symptoms is difficult due to the presence of several bursal sacs located around the hip joint<sup>3,4</sup>. In addition, because it is a relatively uncommon clinical condition, its diagnosis in patients with gluteal pain is difficult<sup>1,3</sup>. Pain in the buttocks and posterior upper thighs after sitting or exercise is the primary symptom<sup>5</sup>. The ischial bursa is located adjacent to the sciatic and posterior femoral cutaneous nerves, thus it is, on occasion, confused with lumbar radiculopathy<sup>5,6</sup>. The disease, which can also resemble a soft-tissue neoplasm<sup>7,8</sup>, can be difficult to detect and distinguish from other diseases. In addition, because it is known as a relatively self-limiting disease, conservative treatment has been regarded as the standard option for treatment of ischiogluteal bursitis<sup>4,9</sup>. Lifestyle modifications and non-steroidal anti-inflammatory drugs (NSAIDs) have been suggested as preferred treatments in some cases, and the effectiveness of treatment by injection of corticosteroid and lidocaine along with cold compression has been demonstrated<sup>6</sup>. However, the time required to achieve relief of symptoms can vary from days to weeks, and there is a high recurrence rate, therefore, invasive treatment in addition to conservative treatment can occasionally be effective. Few studies evaluating surgical treatment for ischiogluteal bursitis have been reported; most of these studies were case reports focusing on diagnosis rather than treatment<sup>1,4,5</sup>. Therefore, the objective of this study was to report the results of surgical excision of ischiogluteal bursitis that was refractory to conservative treatment.

## MATERIALS AND METHODS

### 1. Study Population and Diagnosis

This study was approved by the Institutional Review Board (IRB) of Chonnam National University Hwasun Hospital (IRB No. CNUHH-2022-002). Considering the characteristics of this study, the requirement for patient consent was waived by the IRB. A retrospective review of the medical records of 21 patients diagnosed with ischiogluteal bursitis who underwent surgical excision at our hospital between February 2009 and July 2020 was conducted. The relevant patient population was derived from the hospital database according to the applicable medical history and surgical records. The criteria for inclusion in the current study included radiological evidence of ischiogluteal bursitis and a history of failed conservative treatment. The patient characteristics are shown in Table 1. A review of the computed tomog-

raphy (CT) and 3.0-T magnetic resonance imaging (MRI) scans was performed by two orthopedic surgeons (S.H.L. and K.S.P.) for all patients for the diagnosis and treatment of ischiogluteal bursitis.

### 2. Surgical Technique

Surgery was performed by two orthopedic surgeons using the same technique in all patients included in the study. Surgery was performed under appropriate anesthesia with the patient lying in the prone position, with both hip joints flexed to flatten the gluteal fold and for easy exposure of the ischial bursa. After making a longitudinal incision over the gluteus maximus, the ischiogluteal bursa was identified. Due to the location of an ischial bursa on the ischial tuberosity, a longitudinal 5-cm incision over the palpable bursa enables easy access to the bursa. Aspiration of the bursa was performed using a syringe, followed by removal of the entire bursal sac from the ischial bone. The space-occupying mass was removed, followed by tight approximation of the soft tissues surrounding the bursa in order to prevent dead space, and a closed suction drain was inserted (Fig. 1). Meticulous debridement was then performed, with maintenance of the drain for 3-5 days after surgery. Determination of all samples was based on pathological findings (Fig. 2).

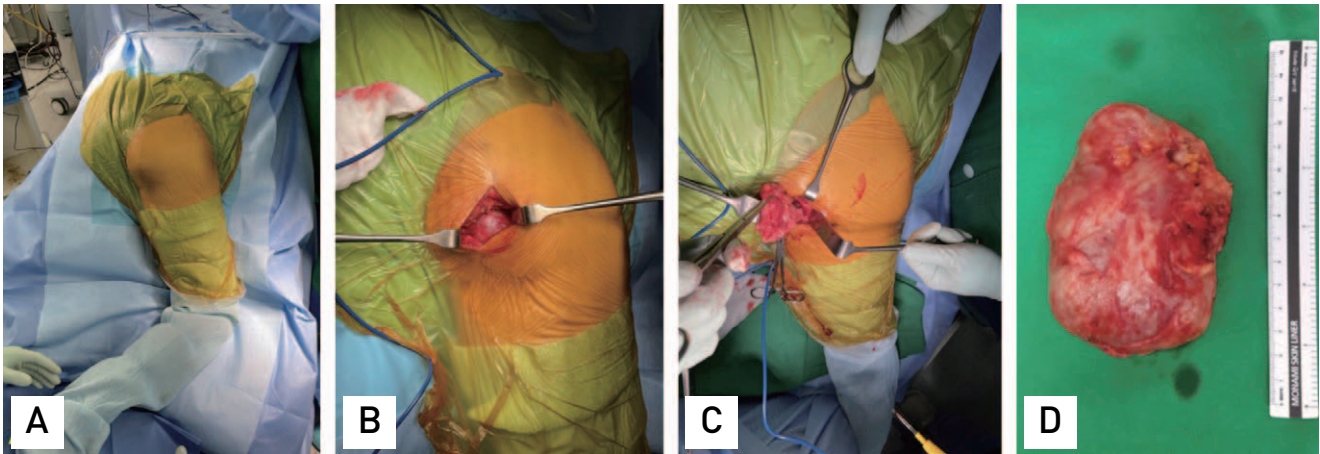
### 3. Outcome Measures

An assessment of the clinical scoring system was per-

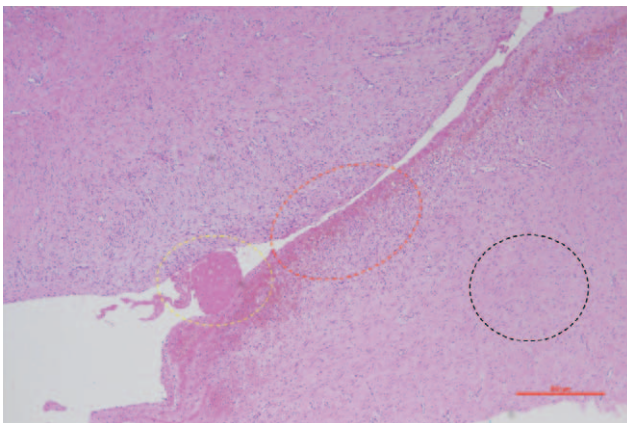
**Table 1.** Overall Patients Characteristics

| Variable               | Value (n=21)                                 |
|------------------------|--|
| Age (yr)               | 70.6 (46-93)                                 |
| Sex, male:female       | 7:14 (33.3:66.7)                             |
| Location, left:right   | 14:7 (66.7:33.3)                             |
| Main symptom           |  |
| Pain                   | 17   |
| Palpable mass          | 4  |
| Aggravating factor     |  |
| Sitting                | 20   |
| Walking                | 6  |
| Lying down             | 2  |
| Refractory period (wk) | 12.1 (9-20)                                  |
| Lesion size (cm)       | 6.2×4.5×3.6<br>(2.5×2.0×1.5 to 11.0×9.5×9.0) |
| Visual analog scale    | 4.3 (3-5)                                    |
| Harris hip score       | 76.5 (71-86)                                 |

Values are presented as mean (range), number (%), or number only.



**Fig. 1.** Surgical technique for the excision of the bursal sac. (A) Patient position: The patient lay in the prone position with both hip joints flexed to flatten the gluteal fold. (B) A longitudinal incision was made over the gluteus maximus (palpable bursa), and the ischial bursa was identified. And the entire bursal sac was removed from the ischial bone (C). (D) A well-separated soft-tissue cyst was observed.



**Fig. 2.** Pathological findings of the excised bursal sac. Histologically, bursitis is observed as an inflamed tissue rather than a characteristic feature. When bursitis has become a chronic, healing state, granulation tissues (new vessel formation–capillary vessels, fibroblasts) presumed to be a result of continuous irritation and inflammation and fibrinoid material due to bleeding are observed. Yellow circle: fibrinoid materials, Red circle, fibrinoid material with hemorrhage and vascular proliferation, Black circle: stromal fibrous change and fibroblasts. H&E stain,  $\times 100$ .

formed in order to determine the clinical course. Assessment of the visual analog scale (VAS) score and Harris hip score (HHS) was performed during periodic visits after surgery, and postoperative complications including recurrence of the mass like lesion and wound infection were examined.

## RESULTS

Of the 21 patients, 14 patients had a history of aspiration and seven patients showed no response to preoperative therapeutic injections. NSAIDs had been previously prescribed to all patients. The mean refractory period before surgical treatment was 12.1 weeks. According to CT and MRI, the mean lesion size was  $6.2\text{ cm} \times 4.5\text{ cm} \times 3.6\text{ cm}$ . The disease course lasted an average of 21.6 days (range, 15–48 days) after excision (Table 1).

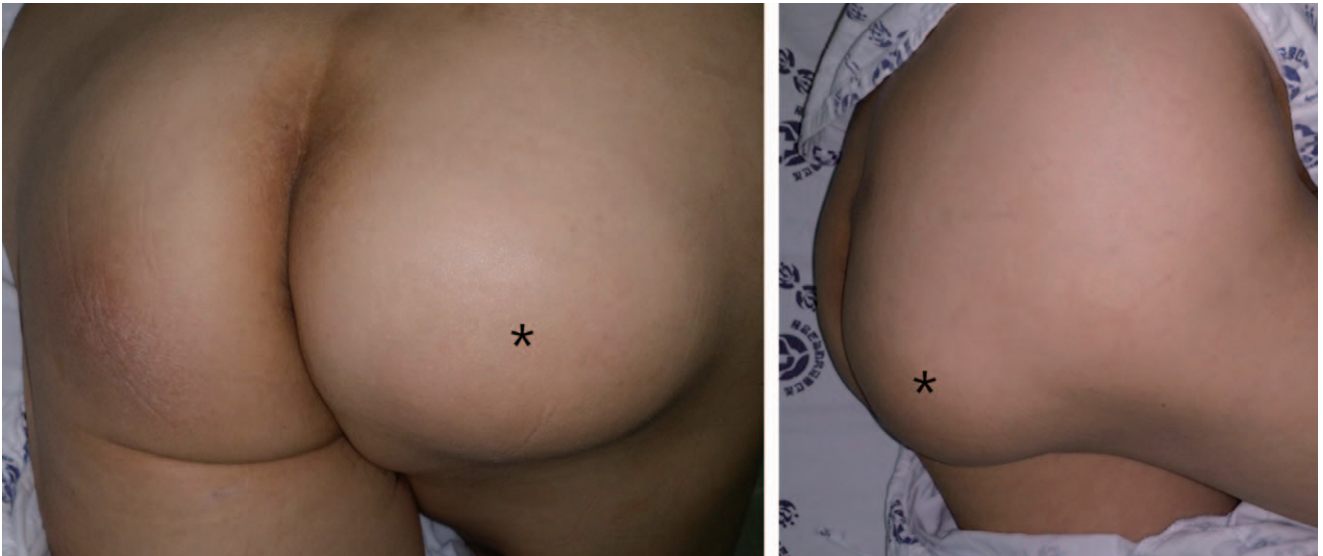
A summary of the clinical details is shown in Table 2. The primary complaint from most patients (17/21, 81.0%) was pain in the buttocks, and four patients (19.0%) reported that the mass was palpable without pain. Pigmented skin findings around the lesion site were detected in 15 of the 21 patients (71.4%). In addition, a relatively large lesion requiring surgical excision was detected in almost every case (Fig. 3). Large, well-defined, lobulated, and septate lesions, with thin bursa were observed around the ischial tuberosity on CT and MRI scans of all patients (Fig. 4). The preoperative mean VAS and HHS scores for patients who showed a response to the clinical scoring systems were 4.3 (range, 3–5) and 76.5 (range, 71–86), respectively. The mean VAS and HHS scores were 0.4 (range, 0–1) and 98.1 (range, 96–100) at one postoperative month, respectively. A decrease in pain was the main contributor to an improved patient hip score (Fig. 5). No postoperative complications were observed. Collection of intraoperative findings and specimens was performed following excision (Fig. 1). No infectious bursitis or osteomyelitis was detected intraoperative-

**Table 2.** Relevant Clinical Details of the Patients with Respect to Surgical Intervention

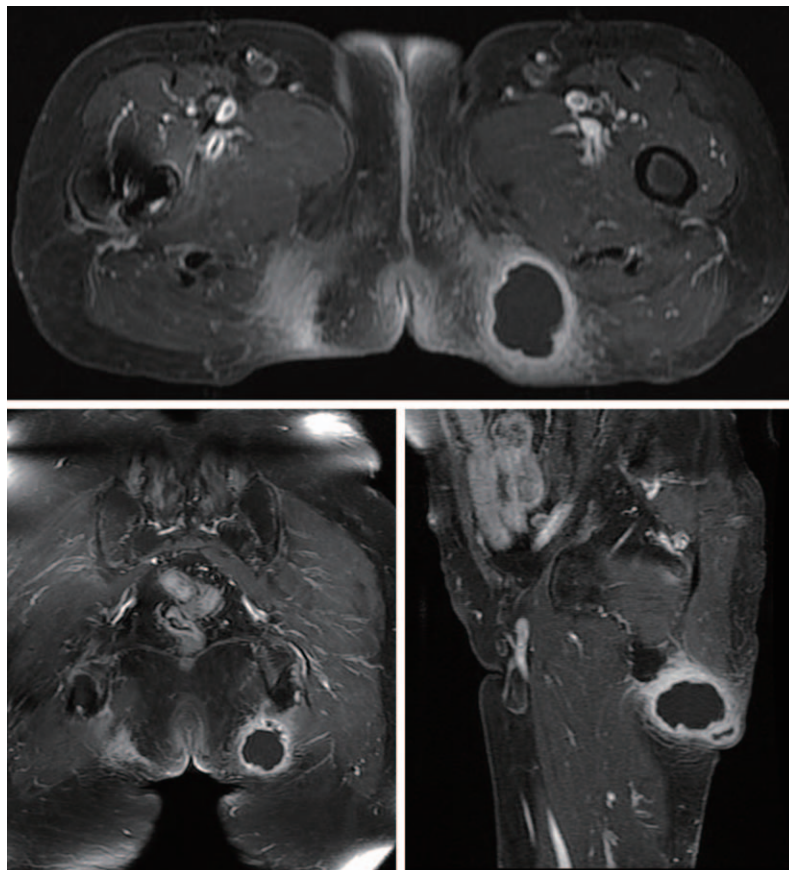
| Case No. | Age (yr) | Sex | Site        | Main symptom  | Aggravating factor  | Refractory period (wk) | Lesion size (cm) | Previous treatment    | VAS* | HHS*   |
|----------|----------|-----|-------------|---------------|---------------------|------------------------|------------------|-----------------------|------|--------|
| 1        | 70       | M   | Left        | Pain          | Sitting             | 15                     | 8×4×2.5          | Aspiration, NSAIDs    | 4/1  | 76/96  |
| 2        | 70       | F   | Left        | Pain          | Sitting             | 11                     | 6.5×5×3.5        | Aspiration, NSAIDs    | 4/1  | 81/96  |
| 3        | 46       | F   | Left        | Pain          | Walking             | 12                     | 6.2×4.5×3.6      | Injection, NSAIDs     | 3/1  | 86/96  |
| 4        | 88       | F   | Right       | Pain          | Sitting, lying down | 13                     | 4.5×4×3.5        | Aspiration, NSAIDs    | 4/0  | 76/100 |
| 5        | 53       | F   | Left        | Pain          | Sitting             | 15                     | 6×4×2.5          | NSAIDs                | 5/0  | 71/100 |
| 6        | 67       | F   | Right       | Palpable mass | Sitting, walking    | 13                     | 8.5×7.0×4.0      | Injection, NSAIDs     | 5/0  | 71/100 |
| 7        | 76       | F   | Right       | Pain          | Sitting             | 10                     | 5.2×4.7×4.7      | Aspiration, NSAIDs    | 4/1  | 76/96  |
| 8        | 75       | F   | Left        | Palpable mass | Sitting             | 14                     | 6.2×4.5×3.6      | NSAIDs                | 3/0  | 86/100 |
| 9        | 78       | F   | Left        | Pain          | Sitting, walking    | 9                      | 8×5.5×4          | Aspiration, NSAIDs    | 5/0  | 71/100 |
| 10       | 78       | F   | Left        | Pain          | Sitting             | 9                      | 4.8×4×5.2        | Aspiration, NSAIDs    | 4/0  | 76/100 |
| 11       | 76       | M   | Left (both) | Pain          | Sitting, walking    | 10                     | 3.7×3.6×3        | Injection, NSAIDs     | 3/0  | 81/100 |
| 12       | 58       | F   | Right       | Pain          | Sitting             | 11                     | 3.5×2.5×2.2      | Injection, NSAIDs     | 3/0  | 81/100 |
| 13       | 56       | M   | Right       | Pain          | Sitting             | 11                     | 5.1×4.9×2.6      | Injection, NSAIDs     | 5/1  | 76/96  |
| 14       | 66       | F   | Left        | Pain          | Sitting             | 11                     | 7×3.5×2          | Aspiration, NSAIDs    | 5/1  | 71/96  |
| 15       | 87       | F   | Left        | Pain          | Sitting             | 10                     | 7.2×4.7×4.2      | Injection, Aspiration | 5/1  | 71/96  |
| 16       | 93       | M   | Left        | Pain          | Sitting, walking    | 10                     | 2.5×2×1.5        | Injection, Aspiration | 4/0  | 81/100 |
| 17       | 63       | F   | Right       | Pain          | Sitting             | 14                     | 5.5×4×2          | Aspiration, NSAIDs    | 5/0  | 76/100 |
| 18       | 68       | M   | Left        | Pain          | Sitting             | 14                     | 5.7×4.5×4        | Aspiration, NSAIDs    | 5/0  | 76/100 |
| 19       | 60       | M   | Left        | Palpable mass | Sitting, lying down | 20                     | 4.8×4.8×2.5      | Aspiration, NSAIDs    | 5/0  | 76/100 |
| 20       | 78       | M   | Left        | Palpable mass | Sitting             | 13                     | 11×9.5×9         | Aspiration, NSAIDs    | 5/1  | 71/96  |
| 21       | 77       | F   | Right       | Pain          | Sitting, walking    | 10                     | 5.6×3.6×4.5      | Aspiration, NSAIDs    | 5/0  | 76/100 |

M: male, F: female, VAS: visual analog scale, HHS: Harris hip score, NSAIDs: non-steroidal anti-inflammatory drugs.

\* At the preoperative and postoperative one month.



**Fig. 3.** Enlarged gluteal lesion in ischiogluteal bursitis. A conspicuously large mass located in the gluteal region (asterisks) was observed in several cases.



**Fig. 4.** Magnetic resonance imaging (MRI) findings; axial (top), coronal (bottom left), and sagittal image (bottom right). MRI showed that the mass was lobulated and septate, with thin septa. The mass showed low signal intensity on T1-weighted image and high signal intensity on T2-weighted image. After contrast enhancement, the wall of the cystic mass was enhanced.

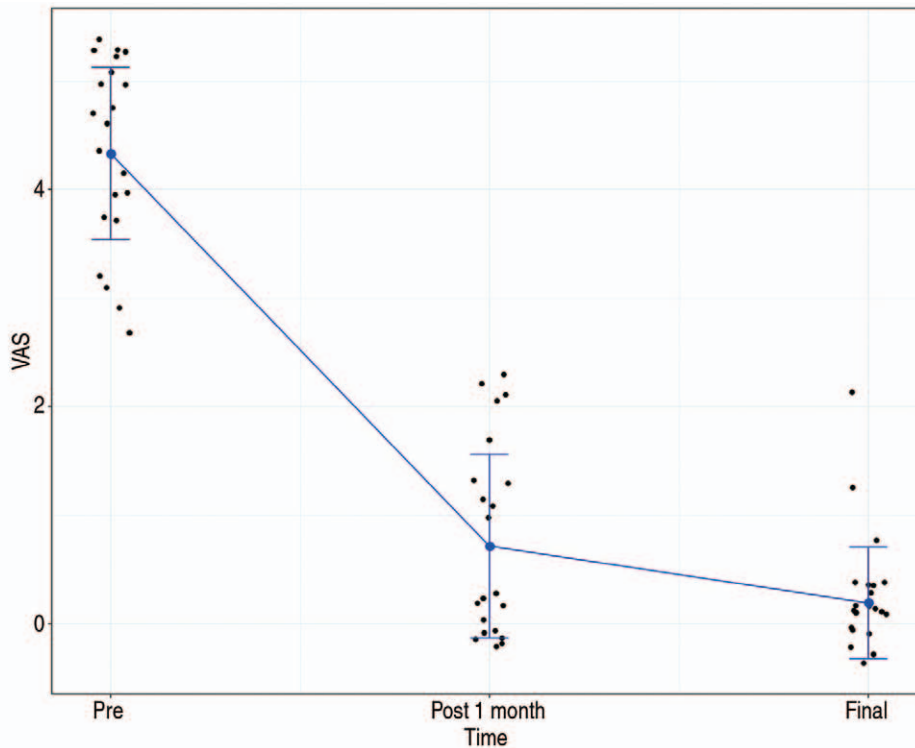


Fig. 5. Change in visual analog scale (VAS) score from preoperative phase to final follow-up.

ly. Thus, satisfactory results from surgical resection were obtained in all cases of ischiogluteal bursitis that were refractory to conservative treatment.

## DISCUSSION

Ischiogluteal bursitis, a rare disease with wide variation of symptomatic periods, degrees of pain, and healing courses, is not often recognized<sup>2,10</sup>. Moreover, it has rarely been described in the literature. The few previous studies reporting on this disease provided minimal radiologic and therapeutic illustrations<sup>1,4,5</sup>. In the current study, excellent outcomes were achieved after surgical treatment for all included patients, particularly those who were refractory to conservative treatments.

Most forms of ischiogluteal bursitis show a good response to conservative treatments<sup>4</sup>. Therefore, because it exhibits a satisfactory course, even without invasive treatment, it is often overlooked clinically with loss of follow-up after diagnosis<sup>11</sup>. However, several differential diagnoses of ischiogluteal bursitis should be considered in patients who complain of severe gluteal/buttock pain that interferes with daily life<sup>6</sup>. There is potential for confusion in patients diagnosed with herniated nucleus pulposus, soft-tissue tumors, and degenerative hip joint disease<sup>7,8,12</sup>. In addition, although mechani-

cal irritation around the ischial tuberosity is regarded as the main cause, the etiology remains unclear<sup>3</sup>. Roh et al.<sup>6</sup> reported that inflammatory disease is an independent risk factor for refractory ischiogluteal bursitis. Involvement of autoimmune diseases, such as rheumatoid arthritis or systemic lupus erythematosus, which can cause bursal inflammation, is also likely in cases of ischiogluteal bursitis; however, few studies have been reported thus far<sup>14</sup>. Patients with ischiogluteal bursitis often complain of mild-to-moderate pain in the buttocks with occasional pain radiating down the gluteal/thigh area, often worsening with prolonged sitting or exercise. Forward bending of the hip joint or standing on the tiptoes can exacerbate pain<sup>9</sup>. In the current study, gluteal pain was the most commonly reported symptom, despite the potential presence of other clinical symptoms at the initial visit. Recognizing the potential for appearance of various clinical symptoms is important; thus, diagnosis should also include a thorough evaluation of medical history as well as an appropriate physical examination<sup>15</sup>. Performance of physical examinations, such as the Patrick and straight-leg-raising tests, can potentially be helpful in making the diagnosis<sup>16</sup>. Ultrasound, CT, and MRI are predominantly used in radiological diagnosis of ischiogluteal bursitis, and previous studies have reported on the findings regarding the use of each diagnostic tool<sup>2,4,17</sup>. Ultrasound is generally regard-

ed as a diagnostic tool that can be easily utilized during a patient's first visit<sup>17</sup>. Because surgical treatment was considered, additional imaging tests (CT, MRI) were performed in our hospital. MRI generally provides important information for use in the diagnosis of bursitis, including ischiogluteal bursitis<sup>2,4</sup>. Therefore, an MRI is preferred in situations where only CT or MRI is required. In most cases, CT was obtained from another hospital, so that only MRI was additionally performed at our hospital. No additional CT scan was required for patients who had undergone an MRI scan. Furthermore, based on our experience, skin pigmentation detected in the gluteal region may be another symptom of ischiogluteal bursitis<sup>18</sup>.

Most previous studies reported on conservative treatment of ischiogluteal bursitis, including administration of NSAID, aspiration, and bursal injection of steroids or local analgesics<sup>3,6</sup>. Among these treatments, lifestyle modification and avoidance of triggering activities was found to be the most fundamental treatment<sup>4</sup>. In most cases, a satisfactory response is obtained from conservative treatment, with the expectation of a favorable prognosis thereafter; however, improvement of symptoms is slow in some cases, showing chronic progression<sup>6</sup>.

Surgical treatment should be considered in cases of refractory ischiogluteal bursitis, and in this study, encouraging results were obtained after performance of surgical excision in all cases.

This study has certain limitations. First, it was a retrospective study that included a small number of patients. Ischiogluteal bursitis, particularly cases that are refractory to conservative treatment, is rare; therefore, this limitation was unavoidable. In addition, a significant proportion of the patients who present at the hospital where the research was conducted, a tertiary medical institution, are referred after receiving primary treatment in other hospitals. Second, there was no consideration of possible risk factors, such as poor baseline physical status and other anatomical factors that might potentially affect the clinical course of the disease.

## CONCLUSION

Treatment involving surgical excision could be considered in cases of refractory ischiogluteal bursitis, with an expectation of favorable results, particularly in patients who show a poor response to conservative treatment, including injection therapy, aspirations, and NSAIDs.

## FUNDING

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## CONFLICT OF INTEREST

The authors declare that there is no potential conflict of interest relevant to this article.

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