

Button Osteoma: A Review of Ten Cases

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Background: Button osteoma presents as small circumscribed ivory-like lumps on the skull vault. Although not rare, its diagnosis can be challenging for dermatologists. **Objective:** To clarify the clinical characteristics of button osteoma by reviewing 10 cases. **Methods:** Ten patients diagnosed with button osteoma at the Department of Dermatology, Kyungpook National University Hospital, between January 2011 and August 2014 were enrolled. We retrospectively reviewed medical records and analyzed demographic and clinical characteristics including sex, age, sites, number of lesions, symptoms, duration, histopathological finding, radiological findings, and treatment. **Results:** All patients presented with an asymptomatic small circumscribed hard lump fixed to a bony structure. There were 9 female and 1 male patient, and the mean age was 54 years (range, 28 ~ 61 years). The most common site was the forehead, and disease duration ranged from 2 weeks to more than 20 years. The differential diagnosis included cranial exostosis, ballooned osteoma, epidermal cyst, and lipoma. Simple radiography, ultrasonography, and computed tomography (CT) were used to make a confirmative diagnosis. Histopathological findings showed lamellated bony structures with poor vascularization. Osteotomy was performed for 5 patients, and no recurrence was detected within an average of 13.4 months after treatment. **Conclusion:** This review characterized button osteoma. Surgical excision is a useful therapeutic modality after CT-based diagnosis. Further studies with more patients are required to

confirm the findings. (*Ann Dermatol* 27(4) 394 ~ 397, 2015)

-Keywords-

Button osteoma

INTRODUCTION

Osteoma, a benign and slow-growing osteogenic tumor, is composed of well-differentiated mature bone tissue and is characterized by the proliferation of compact or cancellous bone¹. Favorable sites of osteoma are the cranial vault and facial skeleton. Although the most common site of cranial osteomas is the frontal sinus, osteomas only involving frontal bone periosteum are occasionally observed². Anthropologists have traditionally referred to small circumscribed bony lumps on the skull vault as button osteoma³. Cranial button osteoma has usually been diagnosed and treated in the Department of Neurosurgery or Plastic Surgery in Korean hospitals; however, dermatologists often encounter patients presenting with asymptomatic bony lumps on the forehead. Although button osteoma is easy to diagnose by radiological examinations such as simple radiography, ultrasonography (USG), and computed tomography (CT), dermatologists are unfamiliar with its diagnosis or surgical treatment using an osteotome and mallet. Here, we report the clinical characteristics of 10 patients with button osteomas who visited our hospital.

MATERIALS AND METHODS

This retrospective review involved the medical records of 10 patients diagnosed with button osteoma at the Department of Dermatology, Kyungpook National University Hospital, between January 2011 and August 2014. Patients' medical records included photographs, clinical information, histopathological information, and radiological images.

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We analyzed demographic and clinical characteristics through medical record review, such as sex, age, sites, number of lesions, symptoms, disease duration, histopathological finding, radiological findings, and treatment.

RESULTS

Clinical features

1) Sex, age, and disease duration

Among the 10 patients, there were 9 women and 1 man. The mean age was 54.3 years, ranging from 28 to 61 years (Table 1). The mean disease duration was 60.1 months, ranging from 2 weeks to 20 years.

2) Sites and symptoms

Button osteoma developed on the forehead in the majority of patients, except for 1 patient who presented with button osteoma on the vertex (Table 1). The chief complaint of all patients was palpable lumps without pain or tenderness (Fig. 1).

3) Number of lesions

All patients had only 1 bony lump on their cranial vault (Table 1). None had multiple button osteomas such as satellite, nested, or disseminated osteoma.

4) Differential diagnosis

Button osteoma of the forehead should be differentiated from cranial exostosis, ballooned osteoma, epidermal cyst, and frontalis-associated lipoma including intramuscular lipoma⁴. Eight patients were initially diagnosed with button osteoma, and one each was diagnosed with intramuscular lipoma and epidermal cyst (Table 1).

Radiological findings

Most patients were evaluated by simple skull radiography (Fig. 2A), USG (Fig. 2B), or CT (Fig. 2C) (Table 1). Bony lumps were identified in the forehead through radiological examination. Among these 3 methods, USG was most commonly used to diagnose button osteoma.

Table 1. Summary of clinical characteristics of patients

Sex	Age (yr)	Duration (yr)	Size (cm)	Number	Site	Initial impression	Past history	Image
Female	60	2	1.0	1	Forehead	Osteoma		CT
Male	60	3	1.0	1	Forehead	Osteoma		USG not done (patient refusal)
Female	50	2	1.0	1	Vertex	Osteoma	Breast cancer	USG, simple radiography
Female	55	0.1	0.7	1	Forehead	Osteoma	Hysterectomy	USG
Female	52	0.3	0.7	1	Forehead	Epidermal cyst		USG
Female	58	10	0.9	1	Forehead	Osteoma		USG not done (patient refusal)
Female	71	1	0.9	1	Forehead	Osteoma		Simple radiography
Female	28	3	1.4	1	Forehead	Lipoma		USG, simple radiography
Female	48	6	0.9	1	Forehead	Osteoma	Tufted folliculitis	CT
Female	61	20	1.1	1	Forehead	Osteoma		CT

CT: computed tomography, USG: ultrasonography.

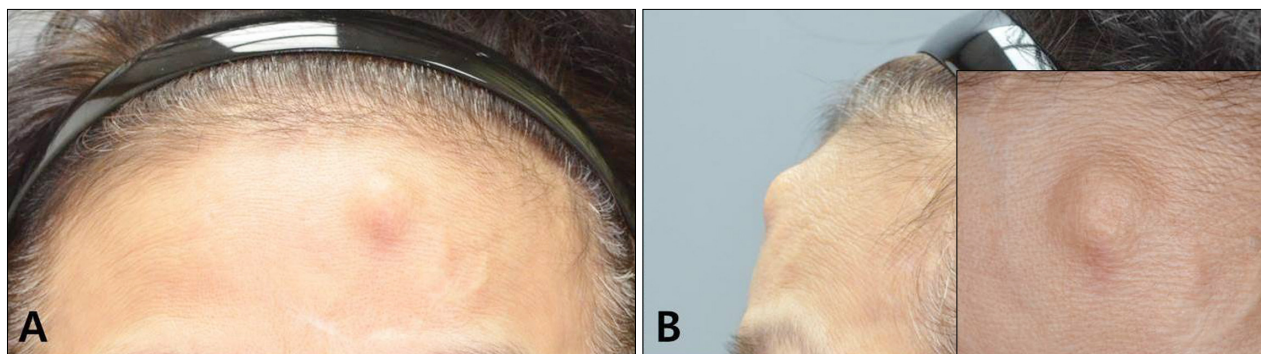


Fig. 1. A solitary well-defined asymptomatic nodule 1.3 cm in diameter is seen on the forehead. Inset: close-up view of the lesion.

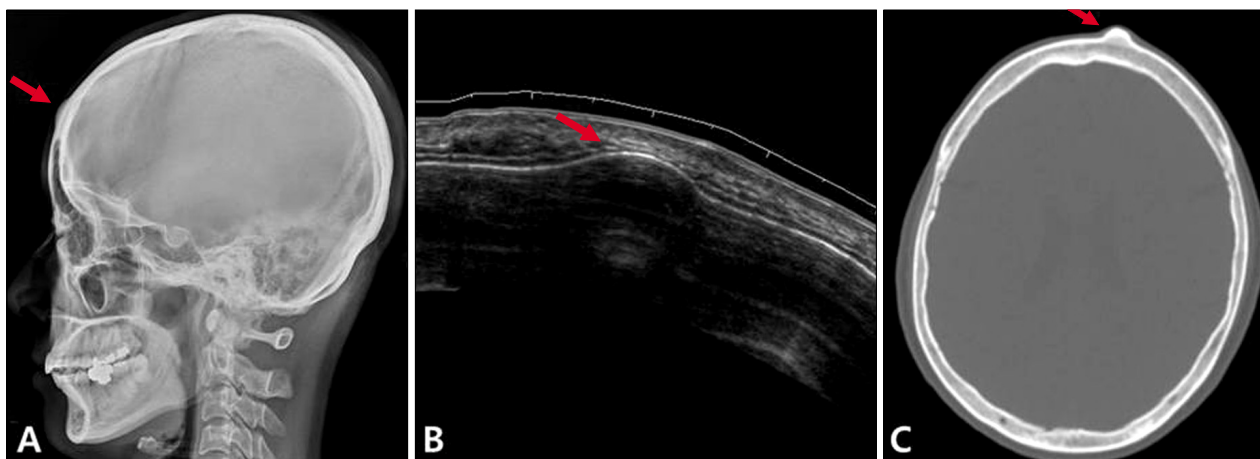


Fig. 2. (A) Simple radiography shows a well-defined smooth homogenous bony density (arrow) on the frontal bone. (B) Ultrasonography shows a 1.4 cm smooth and round bony protuberance (arrow) on the frontal bone. (C) Computed tomography shows a 1.3 cm well-defined homogenous radiopaque lesion (arrow) on the frontal area.

Histopathological findings

Histopathological findings showed compact and mature bone with lacunae (Fig. 3).

Treatment

Ostectomy with a chisel and mallet was performed for 5 patients. Under local anesthesia, skin was incised horizontally along the wrinkle line. The superficial frontalis fascia, frontalis muscle, and deep frontalis fascia were cut vertically. The button osteoma was cleaved from the skull with a chisel and mallet. Finally, a primary suture was made for wound closure of the frontalis muscle and skin incision line. Among the 5 patients who did not receive treatment, 1 is scheduled to undergo ostectomy, while the others are merely undergoing observation.

Postsurgical adverse events and recurrence

There were no severe postoperative complications, and no recurrence was detected within an average of 13.4 months after the operation.

DISCUSSION

Button osteoma is not a rare disease and usually presents with asymptomatic small (rarely > 1 cm in diameter) bony lumps on the parietal or frontal bone^{3,5}. There is no difference in the incidence of button osteoma with respect to ethnicity³. However, the incidence between sexes remains controversial^{3,5,6}. As for sexual preponderance in our study, button osteoma was 9 times more common in female patients than in male patients. Button osteoma commonly occurs in the second through fifth decades of life^{2,5}.

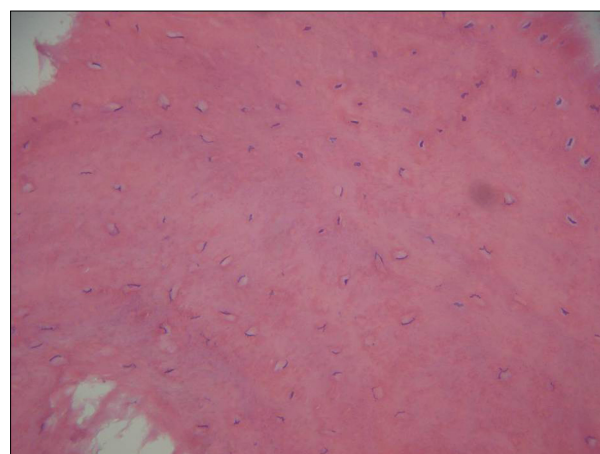


Fig. 3. Histopathological examination shows compact and mature bone with lacunae (H&E, ×200).

However, in the present study, 8 of 10 patients were in the fifth and sixth decades of life. Although the precise etiology of button osteoma remains unknown, it may be related to trauma, infection, developmental abnormalities, etc.⁷.

The differential diagnosis of button osteoma includes metastatic cancer, subcutaneous hematoma, lipoma, epidermal cyst, and ballooned osteoma. Plain radiography, USG, and CT are useful for diagnosis². Button osteoma is generally visualized as radiopaque bone lesions including the outer table of the skull⁸. In the present study, USG was commonly used for imaging bony anatomy, although CT is the best diagnostic imaging tool for button osteoma.

Surgical removal of button osteoma, including ostectomy, curettage, endoscopic surgery, and CO₂ laser cauterization, is usually performed for good cosmesis⁹⁻¹¹. In the

present study, osteotomy with a chisel and mallet was used to treat frontal button osteomas. Asymptomatic small frontal osteomas may be followed up at 6-month intervals by physical examination². Some authors recommend asymptomatic small osteomas should be removed to prevent aggravation or rule out malignancy^{2,12}.

In conclusion, this study characterized button osteoma. Korean dermatologists need to familiarize themselves with this disease. Further studies with more patients are required to confirm the present results.

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