Giant Cutaneous Leiomyoma of Scalp

Sumit Raj1  Deepti Joshi2  Amit Agrawal1  Rakesh Mishra1  Adesh Shrivastav1  Pradeep Chouksey1  Kaustav Saha1

1 Department of Neurosurgery, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India  2 Department of Pathology, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India

Indian J Neurosurg

Address for correspondence  Sumit Raj, MBBS, MCh, Department of Neurosurgery, All India Institute of Medical Sciences, Saket Nagar, Bhopal, Madhya Pradesh, Postal code- 462001, India (e-mail: dr.sumitraj.neurosurgery@gmail.com).

Abstract

Leiomyomas are benign tumors arising from smooth muscle, most commonly seen in uterine myometrium, gastrointestinal tract, skin, and lower extremities of middle-aged women. Leiomyomas of head and neck region account for less than 1% of all leiomyomas. The most common site of leiomyoma in the head and neck region is the lips followed by tongue, and other maxillofacial regions. The clinical features, etiology, differential diagnosis, and treatment of leiomyoma are discussed in this case report. The aim of this case report is to raise awareness about a rare form of scalp giant leiomyoma. This could expand its consideration as a possible cause of uncertain neoplasms and promote accurate clinical diagnosis, leading to better treatment results.

Keywords

► giant leiomyoma  ► neurosurgery  ► scalp leiomyoma

Introduction

Leiomyoma is a benign tumor that can occur in any location with smooth muscle with uterus being most common location of leiomyoma and scalp leiomyoma rarely reported.1

Clinical Presentation

A 30-year-old woman presented with a painless swelling in the right occipital region. There were no complaints of headache, vomiting, and neuromuscular deficits. On examination, there was a 12 cm X 9cm X 6 cm sized freely mobile globular, smooth right occipital swelling with regular margins, firm to hard, and with normal skin. The swelling was in the subcutaneous plane, noncompressible, mobile from underlying bone with negative transillumination test (► Fig. 1 ). Intraoperatively, the tumor was firm in consistency and vascular with scalloping of the occipital bone underneath (► Fig. 1 ).

Radiology

Preoperative computed tomography brain plain (► Fig. 2 ) showed a swelling in the suboccipital region extending to the upper neck region with no intracranial extension.
**Fig. 1** Lateral view showing preoperative size of tumor and operative specimen of $12 \times 9 \times 6$ cm.

**Fig. 2** Preoperative computed tomography brain plain axial and sagittal image showing the tumor with no intracranial extension.
Histopathology

Tumor was encapsulated and composed of spindle cells arranged in interlacing fascicles and whorls, showing minimum pleomorphism without necrosis or an increase in mitotic activity (Fig. 3).

Discussion

The characteristics of different types of cutaneous leiomyomas is depicted in Table 1. Solitary leiomyoma has indistinct boundaries and consists of intertwined smooth muscle bundles with mixed collagen bundles. They possess elongated nuclei with blunt edges and exhibit low mitotic activity. Previously five cases of scalp leiomyoma have been reported.1–5 The reported cases of scalp leiomyoma are detailed in Table 2. Most patients had scalp lesions for a long time without pain. No mitotic figures were found in our case. Solitary lesions are usually amenable for complete surgical resection and recurrence is rare; however, complete excision is not possible with multiple lesions and they usually have higher rates of recurrence.6,7 Surgical excision is the best treatment for solitary scalp lesions.
<table>
<thead>
<tr>
<th>Type of cutaneous leiomyoma</th>
<th>Origin</th>
<th>Multiplicity</th>
<th>Gender</th>
<th>Age of onset</th>
<th>Key features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piloleiomyoma</td>
<td>Pilomotor muscle</td>
<td>Solitary or multiple</td>
<td>Equal distribution</td>
<td>Adolescent</td>
<td>Extensor surface of the extremities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genital leiomyoma</td>
<td>Smooth muscle cells of scrotum or labia</td>
<td>Solitary</td>
<td>Female more than males</td>
<td>35–50 years</td>
<td>Areola of the nipple, scrotum, labium, penis, and vulva</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular leiomyoma</td>
<td>Media of vessel</td>
<td>Solitary</td>
<td>More common in female</td>
<td>40–60 years</td>
<td>Lower extremities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 1: Characteristics of cutaneous leiomyoma**

- **Piloleiomyoma**
  - Origin: Pilomotor muscle
  - Multiplicity: Solitary or multiple
  - Gender: Equal distribution
  - Age of onset: Adolescent
  - Key features: Extensor surface of the extremities
  - Pain: Possible pain on palpation

- **Genital leiomyoma**
  - Origin: Smooth muscle cells of scrotum or labia
  - Multiplicity: Solitary
  - Gender: Female more than males
  - Age of onset: 35–50 years
  - Key features: Areola of the nipple, scrotum, labium, penis, and vulva
  - Pain: Possible pain on palpation

- **Vascular leiomyoma**
  - Origin: Media of vessel
  - Multiplicity: Solitary
  - Gender: More common in female
  - Age of onset: 40–60 years
  - Key features: Lower extremities
  - Pain: Possible pain on palpation
## Table 2: Reported cases of scalp leiomyoma

<table>
<thead>
<tr>
<th>Study Id</th>
<th>Country</th>
<th>Age/Gender</th>
<th>Size (cm)</th>
<th>Location</th>
<th>Appearance</th>
<th>Duration</th>
<th>Pain</th>
<th>Treatment</th>
<th>Histopathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lotfi et al 2010&lt;sup&gt;5&lt;/sup&gt;</td>
<td>Iran</td>
<td>5 months/male</td>
<td>2 × 3 × 0.5</td>
<td>Occipital</td>
<td>Smooth, firm, non-tender, pink, and semimobile mass with ulcerated center and crusting</td>
<td>Appeared 1 week after birth</td>
<td>Absent</td>
<td>Surgical excision</td>
<td>Nonencapsulated mass in dermis composed of spindle cells with no mitotic activity. IHC positive for smooth muscle actin and vimentin, negative for S100. Masson trichrome staining was positive</td>
</tr>
<tr>
<td>Kim et al 2011&lt;sup&gt;4&lt;/sup&gt;</td>
<td>Korea</td>
<td>77 years/male</td>
<td>5.5 × 4.5</td>
<td>Forehead</td>
<td>Solitary erythematous indurated dermal nodule with yellowish papules and telangiectasia</td>
<td>50 years</td>
<td>Present</td>
<td>Surgical excision</td>
<td>Hyperplastic epidermis, muscles cells filled dermis and extended into subcutaneous fat, confirmed with Masson-trichrome staining on IHC. No cellular atypia</td>
</tr>
<tr>
<td>Arishima et al 2013&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Japan</td>
<td>6 years/male</td>
<td>2 cm in diameter</td>
<td>Top of head</td>
<td>Hard, firm</td>
<td>1 year</td>
<td>Absent</td>
<td>Surgical excision</td>
<td>Spindle cell neoplasm with numerous blood vessels and &lt; 1 mitosis/high power field. IHC positive for smooth muscle actin and negative for S100. Vascular leiomyoma</td>
</tr>
<tr>
<td>Fatima et al 2015&lt;sup&gt;1&lt;/sup&gt;</td>
<td>India</td>
<td>22 years/male</td>
<td>5 × 3 × 2</td>
<td>Right scalp</td>
<td>Solitary circumscribed red brown color, soft swelling</td>
<td>6 months</td>
<td>Present</td>
<td>Surgical excision</td>
<td>Well circumscribed and lobulated with cells arranged in a whorl like pattern. Tumor cells are composed of spindle cells and smooth muscle cells. No mitotic figures. Masson trichrome staining was positive</td>
</tr>
<tr>
<td>Kim et al 2017&lt;sup&gt;3&lt;/sup&gt;</td>
<td>Korea</td>
<td>31 years/male</td>
<td>1 × 1</td>
<td>Frontal</td>
<td>Firm and pinkish mass</td>
<td>18 months</td>
<td>Absent</td>
<td>Surgical excision</td>
<td>Non encapsulated spindle cells arranged in whorls. No mitotic figures. IHC positive for actin and negative for S100</td>
</tr>
<tr>
<td>Present case</td>
<td>India</td>
<td>30 years/female</td>
<td>12 × 9 × 6</td>
<td>Occipital</td>
<td>Globular, smooth firm with well-defined margins</td>
<td>1 year</td>
<td>Absent</td>
<td>Surgical excision</td>
<td>Spindle cells arranged in whorls. No mitotic figures</td>
</tr>
</tbody>
</table>

Abbreviation: IHC, immunohistochemistry.
**Conclusion**

Diagnosis of cutaneous leiomyomas relies more on histological examination. Complete excision of solitary scalp leiomyoma with clear margins is the appropriate treatment.

**Ethical Approval Statement**

The study was started after the approval from institutional ethical committee.

**Conflict of Interest**

None declared.

**References**