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(CASE REPORT)

PILOMATRICOMA OF THE NECK IN EARLY CHILDHOOD: A CASE REPORT

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ABSTRACT

Pilomatricoma is a benign adnexal tumor arising from the hair follicle matrix, most commonly encountered in children. While typically presenting as a small superficial lesion, atypical forms in the cervical region may mimic malignant conditions and lead to diagnostic uncertainty.

Case Presentation: We report the case of a 3-year-old child with a family history notable for the death of a sibling from lymphoma, who presented with a progressively enlarging posterior cervical mass. Clinical examination revealed a firm, partially hard, painless swelling without signs of inflammation. Given the clinical context, a malignant etiology was initially suspected. Cervical computed tomography (CT) demonstrated a well-defined subcutaneous mass with heterogeneous density and internal calcifications. To further characterize the lesion, cervical magnetic resonance imaging (MRI) was performed, confirming a well-circumscribed lesion without deep tissue invasion. The patient subsequently underwent complete surgical excision with a bloc resection of the mass. Histopathological examination established the diagnosis of pilomatricoma, revealing characteristic basaloid cells, ghost cells, and areas of calcification.

Discussion: Pilomatricoma can present as a diagnostic challenge, particularly when located in the cervical region and associated with atypical features or an alarming clinical history. Imaging plays a key role, with calcifications on CT being a helpful clue, while MRI assists in assessing local extension. However, definitive diagnosis relies on histopathological examination. Awareness of this entity is crucial to avoid misdiagnosis and overly aggressive management.

Conclusion: Pilomatricoma should be considered in the differential diagnosis of firm cervical masses in children, even in clinically concerning contexts. Complete surgical excision remains both diagnostic and curative.

Keywords: Pilomatricoma; Neck tumors; pediatric; Magnetic resonance imaging

1 INTRODUCTION

Pilomatricoma is a benign adnexal tumor originating from the hair follicle matrix, most commonly affecting children and young adults. It typically presents as a firm, slow-growing, painless subcutaneous nodule, with a predilection for the head and neck region (1). Despite these characteristic features, preoperative diagnosis remains challenging, as pilomatricoma is frequently misidentified, particularly in atypical presentations (2).

In the cervical region, it may mimic various benign and malignant conditions, including lymphadenopathy and soft tissue tumors, leading to diagnostic uncertainty (3). Imaging modalities such as CT and MRI can aid in lesion assessment (4,5) but are often nonspecific (2). Definitive diagnosis relies on histopathological examination, and complete surgical excision remains curative.

We report a case of cervical pilomatricoma in a 3-year-old child, highlighting its diagnostic challenges in a clinically misleading context.

2 CASE REPORT

A 3-year-old girl with a significant family history of a sibling who died from lymphoma presented with a progressively enlarging mass in the posterior cervical region. The swelling had been evolving over approximately 6 months, without associated pain, fever, weight loss, or other systemic symptoms.

On physical examination, a well-defined mass was palpated in the posterior neck measuring approximately 4 × 5 cm. It was firm in consistency, with focal areas of hardness, non-tender, and partially adherent to the overlying skin. The skin covering the lesion was intact, without signs of inflammation or ulceration. No regional lymphadenopathy was detected.

Given the clinical context, particularly the concerning family history, a malignant etiology was initially suspected. A cervical computed tomography (CT) scan was performed, revealing a well-circumscribed subcutaneous mass with heterogeneous density and internal calcifications, without evidence of deep tissue invasion or involvement of adjacent structures (Figure 1).

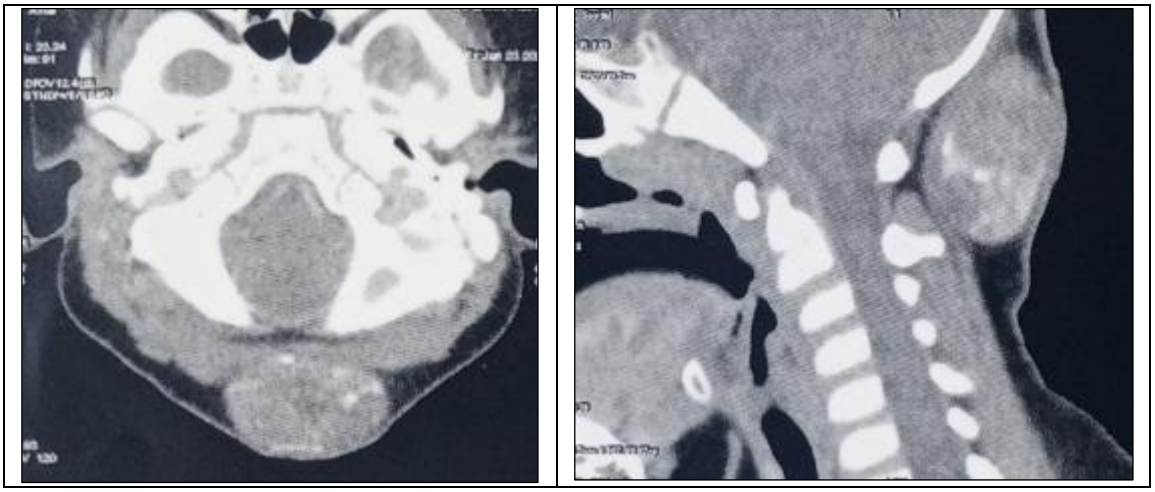

Figure 1: Axial and sagittal CT images of the neck showing a well-circumscribed posterior subcutaneous mass with heterogeneous density and punctate internal calcifications.

To further characterize the lesion and assess its extent, cervical magnetic resonance imaging (MRI) was subsequently obtained. MRI confirmed the presence of a well-defined lesion located within the subcutaneous plane, showing heterogeneous signal intensity and no infiltration of surrounding muscles or neurovascular structures (Figure 2).

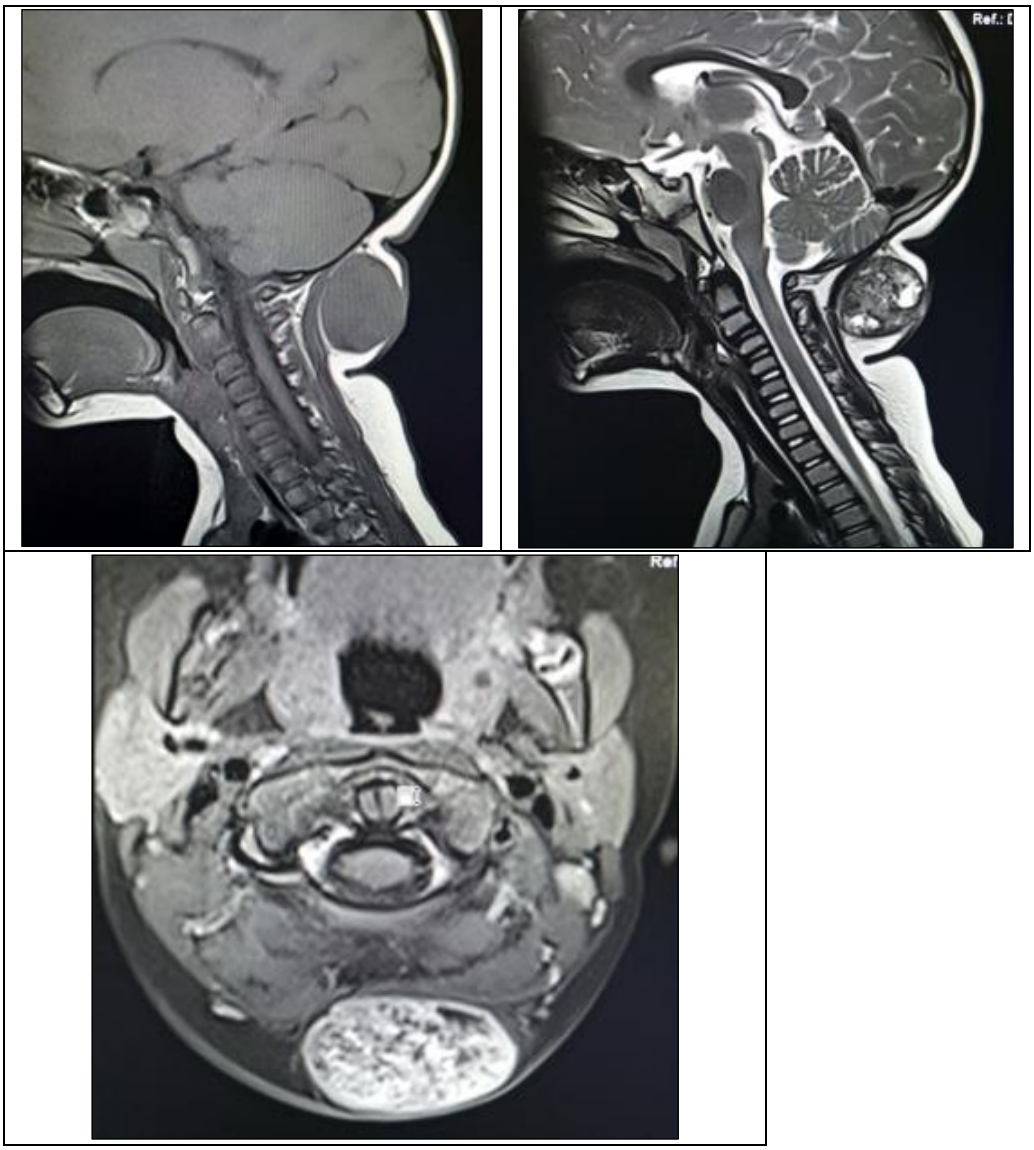

Figure 2: MRI of the neck: sagittal T1 (a), T2-weighted (b), fat-suppressed post-contrast (c) showing a well-defined subcutaneous posterior mass with heterogeneous signal intensity, without infiltration of the underlying muscles.

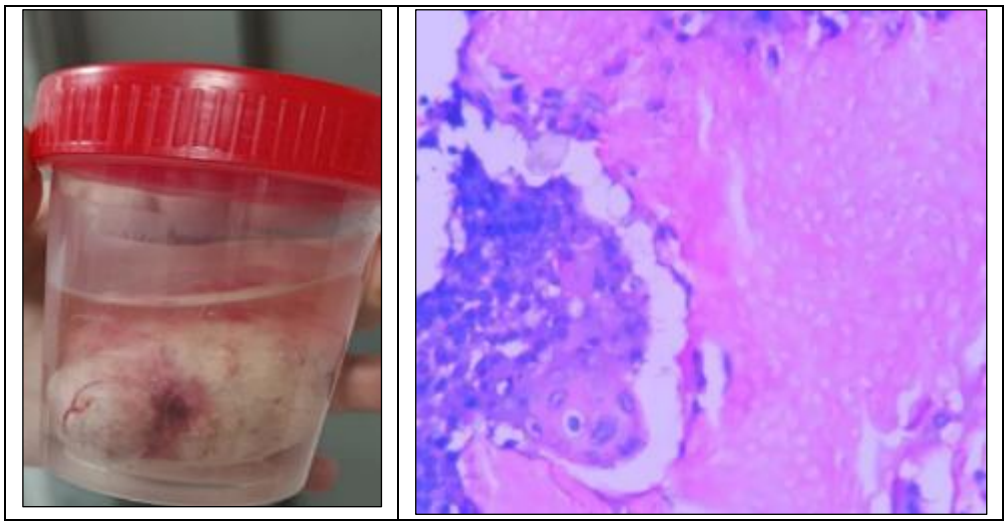

Figure 3: (A) Gross appearance of the excised specimen. (B) Histopathological examination showing basaloid cells (left) and ghost cells (right) (hematoxylin and eosin, ×400).

Based on these findings, surgical management was indicated. The patient underwent complete surgical excision of the mass with en bloc resection. Intraoperatively, the lesion appeared well-circumscribed and confined to the subcutaneous tissue, without invasion of deeper planes (Figure 3A).

Histopathological examination of the excised specimen revealed a well-demarcated tumor composed of basaloid cells and characteristic ghost (shadow) cells, associated with areas of calcification and foreign-body giant cell reaction (Figure 3B). These findings confirmed the diagnosis of pilomatricoma.

The postoperative course was uneventful. At follow-up (10 months), the child showed good clinical recovery with no evidence of recurrence.

3 DISCUSSION

Pilomatricoma is a benign adnexal tumor frequently encountered in the pediatric population, with a predilection for the head and neck region (1,2). In a series of 165 children, 84.2% of solitary lesions involved the head and neck (6), and in a systematic review of 318 pediatric patients about one quarter of the head and neck lesions were located in the neck (7). Despite its relatively characteristic clinical presentation, the preoperative diagnosis remains challenging, with reported low diagnostic accuracy due to its frequent misidentification as other benign or malignant lesions (3,7-9). Clinical diagnostic accuracy averaged 43% in a systematic review of pediatric head and neck cases (7), only 49% of tumors had a correct preoperative diagnosis in a pediatric tertiary-center series (8), and accurate clinical diagnosis was reported in only 16% of cases in a review covering children and adults (9).

In the present case, the diagnostic difficulty was accentuated by the clinical context, particularly the family history of lymphoma, which raised suspicion of a malignant cervical mass. Similar diagnostic challenges have been described in the literature, especially in cervical or large lesions, where pilomatricoma may mimic lymphadenopathy or soft tissue malignancies (2). Bilateral cervical pilomatricomas in a child have likewise been reported to mimic several other diagnoses (10). Several authors report that atypical features such as increased size or rapid growth can further reinforce this suspicion and lead to extensive diagnostic workup (2,3).

Classically, pilomatricoma presents as a firm, painless, slow-growing subcutaneous nodule, usually measuring less than 3 cm (1), with a mean size of 1 cm in a pediatric series (8). However, variations in size, consistency, and evolution may occur, as illustrated in our case, making clinical diagnosis difficult. Differential diagnoses in such presentations include dermoid cysts, vascular tumors, and malignant neoplasms (1,2).

Imaging plays an important but non-specific role in evaluation. Computed tomography typically reveals a well-circumscribed subcutaneous mass with heterogeneous density and possible calcifications, while magnetic resonance imaging is useful for assessing lesion extent and excluding deep tissue invasion (3-5). In pediatric series, CT shows enhancing soft-tissue masses with variable amounts of calcification (4), whereas on MRI the lesions are most often isointense to muscle on T1-weighted images and heterogeneous on T2-weighted images, with enhancement, no restricted diffusion and no infiltration of deep tissues (5). Nevertheless, imaging findings alone are insufficient for a definitive diagnosis, as emphasized in several studies (3,5): in one large pediatric cohort, pilomatricoma was suggested in only 13.3% of the imaged lesions, and 6.7% of the radiology reports described an aggressive tumor (5).

Histopathological examination remains the gold standard for diagnosis. The presence of basaloid cells, ghost (shadow) cells, and calcifications, often associated with foreign-body giant cell reaction, is characteristic of pilomatricoma (1). These features were observed in our case, confirming the diagnosis.

Complete surgical excision is the treatment of choice and is both diagnostic and curative, with a low recurrence rate when the lesion is entirely removed (1,3). In a pediatric series, 2 of 55 tumors (4%) recurred after complete excision (8), and a systematic review likewise reported a very low recurrence rate (7). In our patient, en bloc resection resulted in a favorable outcome without complications or recurrence.

This case highlights the importance of considering pilomatricoma in the differential diagnosis of cervical masses in children, even in clinically alarming contexts. Early recognition of this entity may help avoid misdiagnosis, unnecessary anxiety, and overly aggressive management.

4 CONCLUSION

Posterior cervical pilomatricoma is an uncommon presentation that may closely mimic malignant cervical masses, particularly in young children with concerning clinical backgrounds. In our case, the combination of a large posterior neck mass and a family history of lymphoma contributed to a misleading initial suspicion of malignancy.

This report highlights the importance of including pilomatricoma in the differential diagnosis of firm cervical masses in children, even in atypical or alarming contexts. While CT and MRI are valuable for lesion characterization and surgical planning, they remain non-specific. Definitive diagnosis relies on histopathological examination.

Complete surgical excision with en bloc resection ensures both diagnosis and cure, with an excellent prognosis and low risk of recurrence. Early recognition of this entity can help avoid misdiagnosis and unnecessarily aggressive investigations or treatments.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare that they have no conflicts of interest.

Statement of informed consent

Written informed consent was obtained from the patient's parents for the publication of this case report and the accompanying images.

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