



## Hibernoma at Base of Neck- A Rare Case in a Six Month Old Infant

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### Authors' contributions

This work was carried out in collaboration between all authors. Author PS wrote the draft of the manuscript. Authors PS, ACR, NSC, MRP and DHP helped in case management. Authors MRP and DHP contributed to literature search. Author ARC supervised the work. All authors read and approved the final manuscript.

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### Case Study

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### ABSTRACT

Hibernomas are very uncommon soft tissue tumors. They are composed of brown fat. They are usually seen in adults in the fourth/ fifth decades according to published literature. Very few cases in Paediatric age group have been reported. We present a hibernoma presenting as a swelling on the posterior aspect of base of neck in a six month old infant.

**Keywords:** Hibernoma; neck; infant.

### 1. INTRODUCTION

Hibernomas are very uncommon benign soft tissue tumours. They arise from brown fat that persists beyond fetal life. They are seen in the

interscapular area, mediastinum, axilla, retroperitoneum and neck- which are areas where brown fat remnants may persist [1,2]. The tumour occurs most commonly in adults and only a few cases have been reported in Paediatric

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patients [3]. Because of its rarity in Paediatric age group, we report a cervical hibernoma in a six month old infant.

## 2. CASE REPORT

A six month old boy presented with a history of a small swelling at the base of the nape of neck of three months duration. It increased in size about six weeks prior to presentation at the hospital. The infant had an uneventful birth history with normal developmental milestones. The child's mother gave history of excoriation of skin over the swelling for past two weeks and mild discomfort when the child was laid supine. There was no history of trauma / discharge / bleeding.

On examination, the swelling measured 5.5\*6 cm, was non tender, soft freely mobile with skin over the central part of the swelling showing mild excoriation. There was no cough impulse or transillumination. The differential diagnoses that were considered were lipoma, haemangioma and lymphangioma. Lab evaluation showed haemoglobin of 10.5g%; the total and differential leucocyte counts, erythrocyte sedimentation rate and peripheral smear were normal. Serum C reactive protein was negative. Ultrasound of the swelling revealed a heterogenous mass at the base of posterior aspect of neck in midline with increased vascularity. On Magnetic Resonance Imaging, a superficial, subcutaneous lesion above para vertebral muscles was seen. On T2 images it was seen as a hypointense lesion. T1 and T2 weighted images showed increased peripheral vascularity. Complete excision was suggested. Histopathology confirmed diagnosis of hibernoma (typical eosinophilic type) showing abundant brown fat with plenty of fat lobules separated by connective tissue septae and no atypia. After surgical excision, there was no recurrence of the swelling for six months, beyond which the patient was lost to follow up.



**Fig. 1. Swelling on the posterior aspect of neck**



**Fig. 2. MRI of the swelling**



**Fig. 3. Histopathology**

## 3. DISCUSSION

Hibernomas are benign soft tissue tumours of rare occurrence. They are composed of multiloculated fat cells derived from brown fat. Merkel, in 1906, described the first brown fat tumour as a Pseudolipoma of the breast [4]. Due to resemblance to the brown fat of hibernating mammals, the term 'hibernoma' was coined in 1914 [5,6]. Brown fat exists in humans in intra uterine life and may be recognised after the 21<sup>st</sup> week of gestation. As maturation proceeds, it is slowly replaced by white fat. It may persist in certain areas like neck, axilla, periaortic area mediastinum and peri renal areas [7,8].

Hibernomas are most commonly seen in the fourth and fifth decades of life. In a review of 170 cases by Furlong et al. in 2001 [3], they found a mean age of 38.0 years. They reported about nine tumours in the Paediatric age group. Most common anatomical locations were the thigh,

shoulder, back, neck, chest, arm and abdominal cavity. The average dimension was 9.3 cm with a range of 1-24 cm. Minni A et al. [2] reported a case of Hibernoma of para glottis space in 2007. They also published that about 18 cases of Hibernoma in the neck were reported. Very few cases of hibernoma in Paediatric age group have been reported. A retroperitoneal Hibernoma was reported in a three month old patient by Collado et al in 2011 [9]. Khattala K et al. [10] reported a case of cervical hibernoma arising from supraclavicular fossa in a two year old boy.

Four morphological variants of Hibernoma were described by Furlong et al. [3]. Typical Hibernoma- included eosinophilic, pale cell and mixed cell types; myxoid variant- had loose basophilic matrix; spindle cell hibernoma- had features of hibernoma and spindle cell lipoma; and lipoma like variant- had scattered hibernoma cells. Their review concluded that Hibernomas are most often found in adults and most commonly in the thigh.

Genetic studies in Sweden suggest that formation of Hibernomas may have an underlying genetic predisposition. They found that these tumors present with a balanced translocation between 11q13 chromosome and other chromosomes. These translocations have been associated with MEN 1 and AIP genes [11].

Hibernomas can grow to a large size and cause compressive symptoms. They do not infiltrate surrounding structures. They are benign tumors that do not recur after complete excision [3,8].

#### 4. CONCLUSION

Hibernomas are benign soft tissue tumors with very uncommon occurrence. Their rarity and lack of awareness makes their diagnosis clinically challenging.

#### CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

#### ETHICAL APPROVAL

It is not applicable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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