The chameleon in the neck: Nodular fasciitis mimicking malignant neck mass of unknown primary

Farzad Borumandi a,*, Luke Cascarini b, Ranjan Mallawaarachchi a, Ann Sandison c

a Department of Oral and Maxillofacial Surgery, North West London Hospitals NHS Trust, Northwick Park Hospital, Watford Road, Harrow, London HA1 3UJ, United Kingdom
b Oral and Maxillofacial, Head and Neck Surgery, The London Clinic Consulting Rooms, 5 Devonshire place, London W1G 6HJ, United Kingdom
c Department of Pathology, Imperial College Healthcare NHS Trust, Charing Cross Hospital, London W6 8RF, United Kingdom

ABSTRACT

INTRODUCTION: Difficulties with the correct diagnosis and treatment of nodular fasciitis in head and neck region has been reported in the literature. Nodular fasciitis was mistaken for sarcoma, papillary thyroid carcinoma, Burkitt’s lymphoma, pleomorphic adenoma, or as a vascular lesion.

PRESENTATION OF CASE: We present a patient with a single node in the neck with accelerated growth, which clinically appeared as a malignant epithelial tumor with unknown primary. The en bloc removal of the tumor and selective neck dissection was performed with bilateral tonsillectomy and biopsy of the tongue base. The histopathology revealed the tumor to be nodular fasciitis. No malignant cells were detected.

DISCUSSION: Due to very rapid growth, its rich cellularity and high mitotic activity, nodular fasciitis can be mistaken as a malignant tumor. Trauma and/or infection is advocated to be a trigger for the formation of nodular fasciitis, although the exact aetiopathogenesis still remains unknown. Our patient admitted to regularly practicing martial arts with his opponent performing a specific combat maneuver applying pressure into the neck and submental region, which might have triggered the formation of the nodular fasciitis.

CONCLUSION: Nodular fasciitis is a benign and often overlooked diagnosis in the head and neck region, that can be misinterpreted as a malignant tumor both clinically and histologically. A comprehensive medical history may help to avoid unnecessary radical treatment. If a malignancy cannot be confidently ruled out, the en bloc resection of the tumor with selective neck dissection may offer a safe option with low morbidity.

@ 2012 Surgical Associates Ltd. Published by Elsevier Ltd. Open access under CC BY-NC-ND license.

1. Introduction

Fast growing neck tumors of unknown etiology are of great concern for the patient and the head and neck surgeon making the correct diagnosis and treatment demanding. A malignant tumor of unknown primary metastatic to cervical lymph nodes has to be included in the differential diagnosis of every neck mass and appropriate treatment needs to be offered accordingly. To avoid an over-treatment the surgeon should also be aware of benign lesions with clinical and histological similarities to a malignancy. Nodular fasciitis (NF) accounts for 0.02% of all pathologic diagnosis. First described by Konwaler as subcutaneous pseudosarcomatous fibromatosis, NF is a benign and tumor-like lesion that can virtually occur anywhere in the body and it occurs 7–20% in the head and neck region. Trauma and/or infection is advocated to be a trigger for the formation of NF, although the exact aetiopathogenesis remains still unknown. Due to very rapid growth, its rich cellularity and high mitotic activity, NF can be mistaken as a malignant tumor. The difficulties with the correct diagnosis and treatment of NF in the head and neck region has been reported, where NF appeared as sarcoma, metastatic lymph nodes, papillary thyroid carcinoma, Burkitt’s lymphoma, pleomorphic adenoma, or as a vascular lesion. Fine needle aspiration cytology (FNAC), can be deceptive for the preoperative cytological diagnosis of NF, and the appearance of NF on CT or MRI is nonspecific with no unique radiologic findings. The above mentioned factors make it difficult to chose the right treatment option for a neck lump being suspected of malignancy. In this report, we present the case of NF in the neck with accelerated growth, which appeared as a malignant tumor with unknown primary.

2. Presentation of case

A 48 year old school teacher presented to his primary care physician in February 2011, complaining of a growing lump in the neck, incidentally found under his jaw on the left side. The neck lump was asymptomatic and the patient had not noticed any unintentional weight loss, night sweats or other significant B symptoms.
Except for mild asthma, no major general health concerns were present. The patient was an occasional smoker and moderate alcohol consumer. He admitted to be particularly anxious about the node in his neck as his father had been treated for oral cancer in his fifties. The patient was urgently referred to the department of oral and maxillofacial surgery for further diagnostic and treatment. On examination, there was a hard roundish mass in the left submandibular triangle, which was bi-manually palpable. It had doubled in size within 2 weeks since first detected and it was attached to the surrounding tissue. There were no other enlarged cervical lymph nodes palpable. The integument was unremarkable and the entire oral mucosa and dentition appeared normal. A flexible nasoendoscopy revealed a slightly enlarged left tonsil. The CT scan of the head, neck and thorax demonstrated a single nonspecific soft tissue density in the left submandibular region measuring 8 mm in diameter. Further, an ultrasound guided fine needle aspiration cytology (FNAC) was performed, which was suggestive of a metastatic epithelial tumor of unknown primary. In order to detect the primary site, a half body PET-scan (positron emission tomography) from skull base to upper thighs was performed. In the PET-scan there was an increased uptake of F-18-fluorodeoxyglucose (FDG) in the neck lump revealing a metabolically intensely active neck mass (Fig. 1). No primary site could be demonstrated on the PET scan. After discussion in the head and neck multidisciplinary tumor team meeting, the treatment of choice was the en bloc removal of the tumor with selective neck dissection (SNND). In the same operation, a bilateral tonsillectomy with biopsy of tongue base for detection of a potential primary was performed. The final histopathological diagnosis was nodular fasciitis (NF), and no malignant cells were found in the cervical lymph nodes, the tonsils or in the biopsy from the base of the tongue. After an uneventful postoperative recovery our patient was discharged after 5 days of hospital stay. Our patient admitted to regularly practicing martial arts with his opponent performing a specific combat maneuver applying pressure into the neck and submental region, which might have triggered the formation of the NF.

In the macroscopic specimen, the lesion was a well circumscribed white nodule in the muscle adjacent to the submandibular salivary gland (Fig. 2). Fig. 3 demonstrates the whole mount view of the hematoxylin and eosin stained section through the NF with the myofibroblastic proliferation present in the skeletal muscle and pushing into the surrounding fat. The typical spindle shaped myofibroblastic cells within the lesion can be mistaken for sarcoma. Spindle cells contain vimentin, muscle-specific actin, and smooth-muscle-specific actin (Fig. 5).

3. Discussion

The rapid growth, the result of the FNAC and the intense metabolic activity of the neck mass on the PET scan were indicative for a malignant process with unknown primary. Dahl and...
Akerman firstly advocated the feasibility of fine needle aspirations for NF diagnostics, and this has been supported by other authors. In contrast several authors reported that the NF can easily be mistaken in FNAC for a malignant neoplasm of spindle cells, or tumors of salivary gland and skin, leading to unnecessary surgical treatment. However if the NF is definitely diagnosed by FNAC a nonsurgical expectant management for 4–8 weeks may lead to a spontaneous regression of NF. If resolution does not occur within a few weeks, surgery may then be performed. The surgical therapy for preoperatively diagnosed NF is the local excision of the tumor. Partial excision is acceptable as residual lesion may resolve spontaneously and recurrence occurs rarely, if ever. However, in case of recurrence the diagnosis NF may have to be reconsidered.

4. Conclusion

Nodular fasciitis is a benign and often overlooked diagnosis in the head and neck region, that can be misinterpreted as a malignant tumor both clinically and histologically. A comprehensive medical history may help to avoid unnecessary radical treatment. If a malignant lesion cannot be confidently ruled out, the en bloc resection of the tumor with selective neck dissection may offer a safe option with low morbidity.

Conflict of interest

None.

Funding

None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report.

Author’s contributions


All authors read and approve the final version of the manuscript.

References


