Investigation and management of the neck lump

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Abstract

A neck lump is a common presenting sign in both the paediatric and adult population and may represent a broad range of benign or malignant diagnoses. The appropriate initial assessment, investigation and management is key to delivering appropriate treatments and to avoid missing potentially serious diagnoses. There is a range of imaging modalities available to the treating clinician and huge variability in the appropriate surgical or non-surgical management of disease. In this review, we discuss the approach to the assessment of patients with a neck lump, including the history and examinations which should take place. We discuss the imaging modalities that are most appropriate for each condition and the range of management options available. Both common and rarer diagnoses are discussed through the course of the review.

Keywords Head and neck cancer; lymph node enlargement; neck lump; thyroid

Introduction

A neck lump is a common presenting sign in the adult and paediatric population and a wide variety of conditions require consideration. The initial priority in the assessment of a neck lump, particularly in the adult population, is to identify malignancy in order to expedite treatment. In this review, we discuss the assessment of the patient presenting with a neck lump and then discuss the conditions which cause neck lumps, their investigation and management.

Assessment

History

All patients should have a comprehensive ear, nose and throat history. The key points specific to the head and neck to include in the history are included in Box 1. It is vital that a full and comprehensive history is taken from every patient, including past medical and surgical history, drug history (including allergies) and social history, including details of living arrangements, employment and support networks. Accurate documentation of smoking and alcohol consumption is imperative.

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History and examination of the patient presenting with a neck lump

- History
  - Onset
  - Duration
  - Change/fluctuation in size
  - Pain
  - Skin changes
  - Related symptoms
    - Fever/rigors
    - Weight loss
    - Anorexia
    - Night sweats
    - Symptoms of hyper/hypothyroidism
    - Hoarse voice
    - Dysphagia
    - Odynophagia
    - Otalgia
    - Haemoptysis/bleeding
- Examination of mass
  - Size
  - Tenderness
  - Overlying skin changes
  - Mobility
  - Pulsation
  - Temperature
  - Translucency
  - Movement on swallowing/tongue protrusion

Box 1

Examination

All patients should have a complete ear, nose and throat examination together with an assessment with a flexible laryngoscope. Neck examination should include all levels of the neck, including the parotid and submandibular glands and an examination of the skin, face and scalp if it is clinically necessary. The clinical assessment of the lump itself is detailed in Box 1.

Investigation

The most appropriate investigation depends on the age of the patient and the possible differential diagnoses; these will be discussed later in this chapter. Serological analysis may point towards an infective cause. Ultrasound (US) provides good characterization of lymph nodes and thyroid nodules; it also allows concurrent needle sampling of the mass if required. Computed tomography (CT) provides detail of the bony anatomy; its use for soft tissue of the neck depends largely on local availability and expertise. Magnetic resonance imaging (MRI) provides excellent visualization of the soft tissues and requires no exposure to x-rays. Positron-emission tomography helps in the detection of a primary source in carcinoma of unknown primary and can also be used in the investigation of the patient with advanced cancer of the head and neck (Figure 1).

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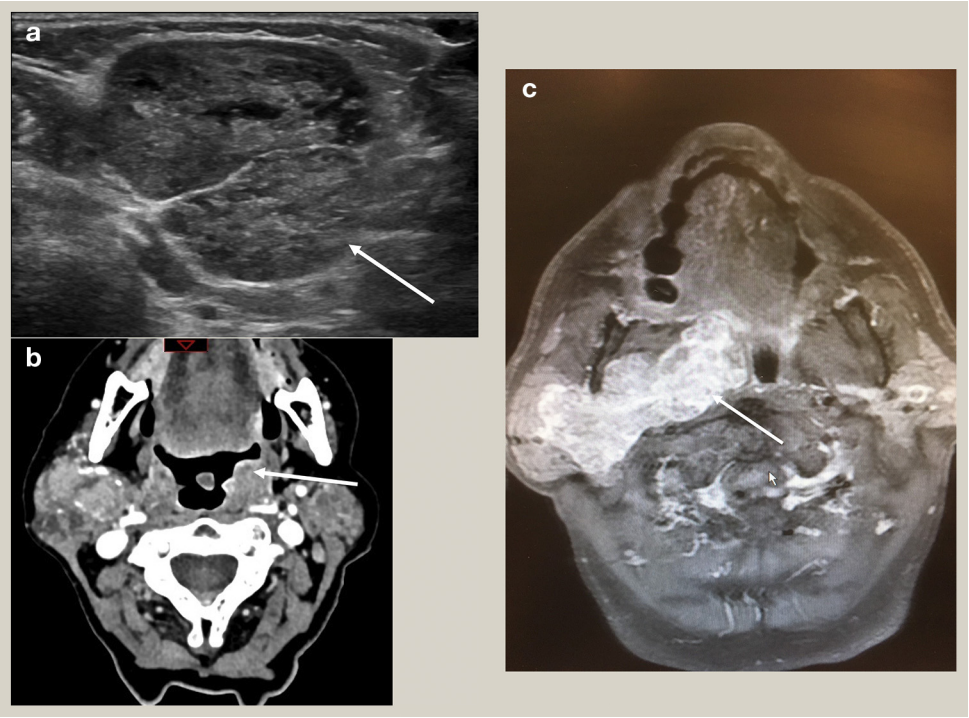

Figure 1 Ultrasound (US), computed tomography (CT) and magnetic resonance imaging (MRI) have various benefits depending on the requirement for tissue sampling, soft tissue or bony detail and visualization of deeper structures. The use of each modality often relies on local availability and expertise. Arrow points to abnormal finding in each scan. (a) US showing loss of normal hilar structure in lymph node. (b) CT scan showing unilaterally enlarged left tonsil. (c) MRI scan showing large mass in right parotid involving deep lobe.

Management of a neck lump

It is important to emphasize that not all neck lumps need any management other than reassurance. Many patients present with masses, which are a normal part of their anatomy (e.g. the submandibular gland and hyoid bone may be palpable even though within normal limits anatomically), or with benign lymphadenopathy which will settle with time. If initial investigations are reassuring, the clinician must bear in mind that surgical management in order to gain a diagnosis and relieve anxiety may hold more risks to the patient than conservative management, Patients should have appropriate 'safety-netting' information if this plan is followed. If pathology is suspected then further investigation (and resultant management) should be performed based on the information gathered in the history and examination. In the majority of cases, ultrasound with possible fine needle aspiration is an appropriate initial investigation.

Congenital neck lumps

Thyroglossal duct cyst: during fetal development, the thyroid gland forms from an endodermal thickening at the foramen caecum and then descends to lie in the neck at the 8th week of gestation. Failure of this tract to obliterate can then lead to the formation of a thyroglossal duct cyst. They are the most common midline neck swelling and can be found in up to 7% of the population. Thyroglossal duct cysts typically present as a midline neck lump which moves on protrusion of the tongue. US confirms the diagnosis and confirms the presence of normal thyroid tissue. Surgery forms the mainstay of treatment and should include excision of the middle portion of the hyoid bone.

Dermoid cysts can present anywhere along the lines of embryonic closure and are the second most prevalent midline neck mass. They are formed through the inclusion of epithelial cells and contain both ectodermal and mesodermal elements which can lead to the presence of hair follicles and sebaceous glands. Just under half are present at birth with the remaining normally presenting by the age of 5 years. The diagnosis is usually clinical but if there is any doubt, US should be performed. Dermoid cysts do not move on swallowing or tongue protrusion and are treated with surgical excision as they can become repeatedly infected.

Branchial abnormalities

First branchial arch anomalies are very rare but can present with a mass in the lower pole of the parotid gland and can therefore be easily misdiagnosed as parotitis or a parotid tumour. The mass may be associated with a pit in the skin or within the external auditory canal. Investigations include US and MRI to assess the relationship to the facial nerve. Treatment is surgical and its close proximity to the facial nerve dictates a parotidectomy incision and facial nerve monitoring.

Second branchial arch anomalies: second branchial arch anomalies are the most frequent branchial abnormality and tend to present with a pit or swelling in the mid or lower neck at the anterior border of the sternocleidomastoid muscle. They classically run over the carotid sheath and hypoglossal nerve and beneath the posterior belly of the digastric muscle between the internal and external carotid arteries. Diagnosis is usually clinical, although a sinogram may help delineate the extent of the tract. Surgery is the treatment of choice in symptomatic cases and

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