

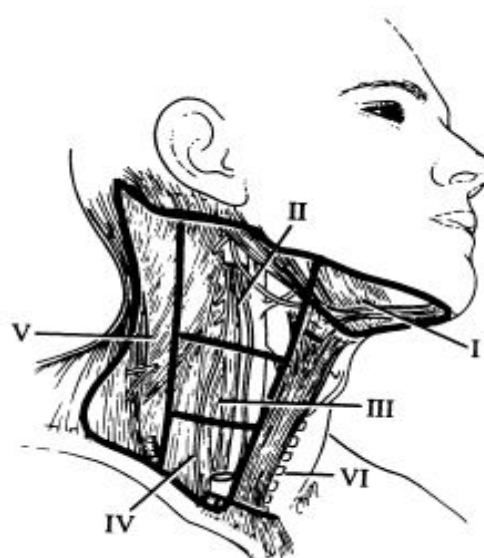
### INTRODUCTION

In the patient who presents with a lump in the neck, the practitioner should initially attempt to differentiate between cervical lymphadenopathy secondary to present or past infection in the head and neck, and other causes of neck lumps.

A diagnosis can usually be established based on history, examination of the head and neck, and the anatomical location of the lump. Fine needle aspiration cytology (FNAC) may assist in establishing a diagnosis. Incision or excision biopsy of neck lumps should be avoided, as it may jeopardize subsequent treatment.

### Surgical Anatomy

The precise anatomical location of the mass is important in making a diagnosis. Each half of the neck is by convention divided into 6 anatomical regions.



*General:* Weight loss, Tuberculosis, AIDS, lymphoma, smoking, alcohol

*Age of onset:* Infections occur more commonly in the young; metastatic malignancy in the elderly. Congenital abnormalities such as thyroglossal and branchial cysts are most frequently found in the young.

### Examination

*The lump:* anatomical location / region, shape, size, consistency, mobility; pulsation, thrill / bruit. Submandibular gland masses are bimanually palpable; nodes in Level 1 are not. The principal differential diagnosis for central masses is: thyroglossal duct remnant, dermoid cyst, cervical lymphadenopathy, lipoma, haemangioma, fibroma. Central masses that move upward on swallowing are thyroid, or thyroid related (thyroglossal cysts). Malignant masses are usually hard and painless; infective lymphadenitis is usually tender. Carotid body tumours have an expansile pulsation; this may be mimicked by transmitted pulsation from the carotid bifurcation.

Region	Contents & Pathology
1	Submandibular gland; nodes; thyroglossal duct cyst; plunging ranula
2	Upper jugular nodes; Carotid body tumour, aneurysm; branchial cyst, pharyngeal pouch
3	Mid-jugular nodes; branchial cyst
4	Inferior jugular nodes; Virchow Trossier node; thyroid
5	Nodes
6	Thyroid; parathyroid; thyroglossal duct cyst; nodes

### History

*The lump:* Duration, growth rate, fluctuation in size, pain

*Head & Neck:* tonsillitis / pharyngitis, pain, hoarseness, odynophagia, dysphagia, nasal obstruction, epistaxis, previous tumours (including scalp)

*Head & Neck:* Lymph node enlargements must be correlated with their drainage areas. Examine the scalp, salivary glands, nose, oral cavity, pharynx and thyroid gland. When adenopathy secondary to ENT diseases is suspected, referral to an ENT specialist is mandatory for examination of larynx, hypopharynx and nasopharynx.

*General:* Supraclavicular nodes may be secondary to disease in the chest, breasts, oesophagus, or abdominal malignancy. Cervical adenopathy may be due to lymphoma, TB or AIDS.

### **Special investigations**

If a primary tumour is found, then the diagnosis is confirmed by biopsy of the tumour. If the aetiology remains obscure, then the following investigations are done.

*FNAC:* simple, and can assist with diagnoses such as viral and bacterial infection, tuberculosis, benign and malignant neoplasms

*CXR:* tuberculosis, lymphoma, lung carcinoma, metastases

*Barium swallow:* patients with dysphagia, to exclude oesophageal carcinoma.

## **SPECIFIC NECK LUMPS**

### **Thyroglossal duct cysts**

These are the most common of developmental anomalies encountered in the neck. They are embryological remnants of tissues left behind in the descent of the thyroid from its origin at the base of the tongue. Although commonly encountered in children, they not infrequently have a delayed appearance and are first noted in adolescents and even adults. A thyroglossal cyst may develop at any point between the foramen caecum at the base of the tongue, and the isthmus of the thyroid gland. It usually appears as an upper midline circumscribed, smooth, and non-tender mass, in the region of the hyoid bone. An infected cyst may become adherent to the overlying skin, through

which spontaneous rupture may occur. After spontaneous rupture or surgical drainage, a persistent thyroglossal duct sinus is formed. Non-infected cysts can be displaced upward and downward as well as from side to side. On protrusion of the tongue, the cystic mass usually can be seen to rise in the neck. This does not occur with other neck masses except for an ectopic thyroid gland. Thyroglossal duct cysts may become malignant. Treatment is by excised, together with the body of the hyoid bone, and a core of tongue up to the foramen caecum (Sistrunk operation).

### **Inclusion Dermoid Cysts**

Squamous epithelium may be trapped during the fusion of the embryological structures that form the face, and present as cystic swellings. These cysts may present in the midline between the cricoid bone and suprasternal notch and are usually found in children or young adults. They are firm, smooth and non-tender and frequently are difficult to distinguish clinically from a thyroglossal cyst or a nodule of the thyroid isthmus. Treatment is by surgical excision.

### **Branchial cleft remnants**

Branchial clefts remnants may give rise to branchial cysts, sinuses or fistulae. The precise location of the inner opening, course and outer opening depends on the branchial cleft it originates from. It may present as a lateral neck swelling, or draining sinus / fistula anywhere between the pre-auricular area and the clavicle, along the medial border of the sterno-mastoid muscle. Branchial cysts may occur in childhood, but are more commonly found in the third decade of life. The cyst typically lies under the angle of the jaw, beneath the middle of the sterno-mastoid and protrudes around the anterior border of the muscle. The size is variable and may fluctuate. The cyst contains cholesterol crystals and is lined by squamous

epithelium, its contents varying from a clear fluid to a cheesy substance. Infection is the commonest complication, often following an upper respiratory infection or tonsillitis, when the cyst enlarges and becomes noticeable for the first time. The cysts/sinus should be excised together with any embryonic remnants.

### **Cystic Hygroma**

Cystic hygromas are congenital abnormalities of the lymphatic system, and present at birth or within the first year of life. They may be located in the anterior and posterior triangles of the neck, and may extend into the mouth. The lesions are characteristically soft, irregular, compressible and transilluminant. Treatment is by excision by a specialist paediatric surgeon. Drainage and sclerosant injection have high complication rates.

### **Pharyngeal Pouch**

A pharyngeal pouch is a pulsion diverticulum, which appears behind the pharynx, between the thyropharyngeus and crico-pharyngeus muscles, and is attributed to hypertension of the cricopharyngeal sphincter. The clinical features are that of dysphagia, regurgitation and food inhalation. A mass may be felt on the left side of the neck. Diagnosis can be established by barium swallow. Excision is the treatment of choice.

### **Laryngocoele**

Herniation of the laryngeal mucosa may occur through the thyrohyoid membrane, and present as a soft, transilluminant mass. This should be managed by ENT specialists.

### **Carotid Body Tumour**

This rare, slow growing tumour arises from the sympathetic baroreceptor, the carotid body, which lies at the carotid bifurcation. It presents as an asymptomatic mass at the angle of the

jaw. It characteristically moves from side to side (not up and down), and transmits pulsation. The jugulodigastric lymph node may mimic these features. When suspected, such patients should be referred to a vascular surgeon for further investigation (usually Doppler ultrasonography), and possible excision.

### **Lymph Nodes**

Cervical lymphadenopathy is frequently encountered at the primary health care level. While most cases are due to oro-pharyngeal infections, there are several serious diseases that may present in this manner: Tuberculosis is encountered at all ages. Metastatic malignancy should be considered in older patients.

### **Acute (Pyogenic) Lymphadenitis**

Children frequently present with acute lymphadenitis secondary to dental, tonsillar, ear and scalp infections. Appropriate treatment of the primary condition with antibiotics results in rapid subsidence of the glands.

### **Cervical Tuberculous Lymphadenitis**

Tuberculous lymphadenitis is usually secondary to a primary tonsillar focus, which may not be apparent. The glands are characteristically matted, and may have overlying oedema. In late disease caseation may occur producing fluctuation, and after breakdown, sinus formation, which has the characteristic appearance of neck masses with suppurating sinuses. (This was previously called "Scrofula"). When suspected, the following tests should be performed: pus swab (looking for acid-fast bacilli); chest radiograph; FNAC (when pus is not evident, to look for caseation). The disease is notifiable, and conventional anti-tuberculous therapy prescribed.

## **Lymphoma**

Lymphoma may present with isolated or generalised lymphadenopathy. Glands have a characteristic firm, rubbery consistency. Extensive disease may be accompanied by night sweats and weight loss. Initial investigation should be by FNAC to exclude inflammatory lymphadenitis, followed by excisional biopsy to characterise the lymphoma. Patients should be referred to specialist centres for management, which is usually with combination chemotherapy, and perhaps radiotherapy.

## **Metastases to Lymph Nodes**

In adults cervical adenopathy may be due to ENT malignancy, or be metastatic from elsewhere in the body. A thorough oropharyngeal examination is essential, together with indirect laryngoscopy. If no primary site is evident, FNAC will differentiate inflammatory from malignant causes, and in turn differentiate lymphoma, squamous, adenocarcinomatous malignancies. It is not cost effective to search for a primary site (other than by ENT inspection) before the nature of the node is known. Nodes in the left supraclavicular area may come (via the cisterna chyli) from gastrointestinal malignancy, the so-called Virchow-Trossier gland.



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