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This series provides an overview of current thinking in the more relevant areas of Oral Medicine, for primary care practitioners.

The series gives the detail necessary to assist the primary dental clinical team caring for patients with oral complaints that may be seen in general dental practice. Space precludes inclusion of illustrations of uncommon or rare disorders.

Approaching the subject mainly by the symptomatic approach, as it largely relates to the presenting complaint, was considered to be a more helpful approach for GDPs rather than taking a diagnostic category approach. The clinical aspects of the relevant disorders are discussed, including a brief overview of the aetiology, detail on the clinical features and how the diagnosis is made, along with guidance on management and when to refer, in addition to relevant websites which offer further detail.

Oral Medicine:10. Lumps and Swellings: Neck

Specialist referral may be indicated if the Practitioner feels:

- The diagnosis is unclear;
- A serious diagnosis is possible;
- Systemic disease may be present;
- Unclear as to investigations indicated;
- Complex investigations unavailable in primary care are indicated;
- Unclear as to treatment indicated;
- Treatment is complex;
- Treatment requires agents not readily available;
- Unclear as to the prognosis;
- The patient wishes this.

Neck lumps

The lymphoid system is the essential basis of immune defences and comprises predominantly bone marrow, spleen, thymus and lymph nodes. Tissue fluid drains into lymph nodes which act as 'filters' of antigens and, after processing in the nodes, lymph containing various immunocytes drains from the nodes to lymph ducts and then to the circulation. A lymph node

consists of a cortex, paracortex and medulla and is enclosed by a capsule. Lymphocytes and antigens (if present) pass into the node through the afferent lymphatics, are 'filtered', and pass out from the medulla through the efferent lymphatics. The cortex contains B cells aggregated into primary follicles; following stimulation by antigen these develop a focus of active proliferation (germinal centre) and are termed secondary follicles. These follicles are in intimate contact with antigen-presenting dendritic cells. The paracortex contains T cells, and the medulla contains T and B cells.

Causes of lymph node enlargement

Many diseases can present with lesions in the neck but the most common are lesions involving the lymph nodes (Table 1).

Lymph nodes enlarge in oral infections or local infections in the drainage area (virtually anywhere in the head and neck). Most common is an enlarged jugulo-digastric (tonsillar) lymph node, inflamed secondary to a viral upper respiratory tract infection. Children and young adults are predominantly affected (Table 2). Enlarged cervical lymph nodes may also be related to malignant disease in the drainage area (eg carcinoma) or may be a manifestation of systemic disease (eg HIV/AIDS). Adults are predominantly affected.

Examination of cervical lymph nodes

The examination of lymph nodes in the neck is an important part of every orofacial examination. About one-third of all the lymph nodes in the body are in the neck and dental surgeons can often detect serious disease through their examination of the neck.

Inspection of the neck, looking particularly for swellings or sinuses, should be followed by careful palpation of the thyroid gland and all the lymph nodes, searching for swelling or tenderness.

It is prudent to adopt a systematic and methodical approach examining different lymph node groups in turn:

- Submental;
- Submandibular;
- Pre-auricular/parotid;
- Occipital;
- Deep cervical chain.

Both anterior and posterior cervical nodes should be examined as well as other nodes, liver and spleen if systemic disease is a possibility. Most disease in lymph nodes is detected in the anterior triangle of neck, which is bounded superiorly by the mandibular lower border, posteriorly and inferiorly by the sternomastoid muscle, and anteriorly by the midline of the neck. Nodes in this site drain most of the head and neck, except the occiput and back of neck. Lymphadenopathy in the anterior triangle of the neck alone is often due to local disease, especially if the nodes are enlarged on only one side.

A limited number of lymph nodes swell usually because they are involved in an immune response to an infectious agent in the area of drainage and nodes are then often firm, discrete and tender, but are mobile (lymphadenitis). The focus of inflammation can usually be found in the drainage area, which is anywhere on the face, scalp and nasal cavity, sinuses, ears, pharynx and oral cavity. Lymph nodes that are tender may be inflammatory, leukaemia or lymphoma; those that are increasing in size and are hard may be malignant.

Lymph nodes may show reactive

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Inflammatory	Infective	Local	Bacterial	Local infections in the head and neck
		Systemic	Viral	Viral respiratory infections Herpes simplex Herpes zoster Herpangina Rubella
	Probably Infective		Bacterial	Syphilis Tuberculosis Atypical mycobacterioses Cat scratch fever Brucellosis
Non-Infective		Sarcoidosis Crohn's disease Connective tissue diseases	Viral	Glandular fever syndromes (EBV, CMV, HIV, HHV-6)
	Protozoal		Toxoplasmosis	
Malignancy	Primary	Leukaemias Lymphomas		
	Secondary	Metastases		
Other	Drugs, eg phenytoin			

Table 1. Causes of cervical lymph node enlargement.

hyperplasia to a malignant tumour in the drainage area, or swelling because of metastatic infiltration. The latter may cause the node to feel distinctly hard, and it may become bound down to adjacent tissues ('fixed'), may not be discrete, and may even, in advanced cases, ulcerate through the skin. The neoplasms that frequently metastasize to cervical lymph nodes are oral squamous

carcinoma (Article 3), nasopharyngeal carcinoma, tonsillar cancer and thyroid tumours.

Usually one or more anterior cervical nodes are involved, often unilaterally in oral neoplasms anteriorly in the mouth, but otherwise not infrequently bilaterally.

Generalized lymphadenopathy with or without enlargement of other

lymphoid tissue, such as liver and spleen (hepatosplenomegaly), suggests a systemic cause.

The local cause may not always be found despite a careful search. For example, children occasionally develop a *Staphylococcus aureus* lymphadenitis (usually in a submandibular node) in the absence of any obvious portal of infection.

More serious is the finding of an enlarged node suspected to be malignant but where the primary neoplasm cannot be found. Nasopharyngeal or tonsillar carcinomas are classic causes of this and an ENT opinion should therefore be sought. Clinically unsuspected tonsillar cancer is a common cause of metastasis in a cervical node. Biopsy of the tonsil may reveal a hitherto unsuspected malignancy.

Rare causes of cervical metastases include metastases from stomach or even testicular tumours to lower cervical nodes. However, in some patients with a malignant cervical lymph node, the primary tumour is never located.

Lymph nodes may also swell when there are disorders involving the immune system more generally, such as the glandular fever syndromes, HIV/AIDS and related syndromes, various other viral infections; bacterial infections such as syphilis and tuberculosis; and parasites such as toxoplasmosis. In the systemic infective disorders the nodes are usually firm, discrete, tender and mobile. Lymph nodes may also swell in non-infective lesions such as sarcoidosis, mucocutaneous lymph node syndrome, and neoplasms such as lymphomas and leukaemias (Table 1). In the latter instances, and in the glandular fever syndromes (where there is lymphadenopathy often together with sore throat and fever; Table 3), there is usually enlargement of many or all cervical lymph nodes and in some there is involvement of the whole reticuloendothelial system, with generalized lymph node enlargement (detectable clinically in neck, groin and axilla) and enlargement of the liver and spleen (hepatosplenomegaly). In the lymphomas particularly, the nodes may be rubbery, matted together and fixed to deeper structures.

Management

A Specialist opinion is generally indicated.

Age	Most common causes of swelling
Child (first decade)	Lymphadenitis due to viral respiratory tract infection
Adolescent and teenager (second decade)	Lymphadenitis due to viral respiratory tract infection; Bacterial infection; Glandular fever syndromes; HIV infection; Toxoplasmosis
Adult (third and fourth decades)	Lymphadenitis; Glandular fever syndromes; HIV infection; Malignancy
After fourth decade	Lymphadenitis; Malignancy

Table 2. Lymph node swellings at different ages. (Reproduced from Scully C. *Oral and Maxillofacial Medicine*. Elsevier, 2008.)

Features	Adolescents and young adults mainly	Sore throat Fever; Lymphadenopathy		
Causal agents	Epstein-Barr virus (EBV)	Cytomegalovirus (CMV)	<i>Toxoplasma gondii</i>	Human immune deficiency viruses (HIV)
Investigations	Paul-Bunnell Test EBV antibody titres	CMV antibodies	Sabin-Feldman dye test Specific IgM antibodies	HIV antibody titres Lymphopenia T4 (CD4) cell numbers

Table 3. Glandular fever syndromes.

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