ESSENTIALS OF SURGERY FOR DENTAL STUDENTS

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BY

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PREFACE

THIS book has been written expressly for the dental student about to embark upon general hospital practice. Emphasis, therefore, has been laid on the clinical approach to the surgical patient and on methods of examination. Certain considerations have been featured:

1. Basic surgical principles.
2. Conditions likely to be encountered by the dental student, and therefore of especial importance to him, have been described in detail.
3. Brevity has been a constant aim as the dental curriculum is already overfull.

The subject-matter is the fruit of lectures and clinical teaching at the University of Liverpool over a period of years. My aim has been to cover the syllabus in surgery of the Royal College of Surgeons and of the Universities of the British Empire. Surgical bacteriology has been omitted as it is thoroughly dealt with elsewhere. Similarly, the usual chapter on anæsthesia has not been included for the reason that this important branch is the subject of a special course and special textbooks. Otherwise the syllabus has been faithfully followed. In the confident belief that one good diagram is of more value to the student than pages of print, I have attempted to illustrate all important diseases.

I hope that certain sections, notably that dealing with tumours of the jaw, will be of interest also to dental surgeons. It is most important to foster that close collaboration between general and dental surgeon, so essential for efficient and expeditious treatment of the borderline case.

I am greatly indebted to many friends for their freely given help, advice and encouragement. I am especially grateful to:

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Some illustrations have been taken from:

1. Handfield Jones and Porritt (*Essentials of Modern Surgery*, E. & S. Livingstone, Edinburgh);
2. Evans and Cade (*British Journal of Surgery*, Wright of Bristol);
3. Kennon (*British Dental Journal*);
4. Stanford Cade (*Malignant Disease and its Treatment by Radium*, Wright, Bristol);

and to all these authors I tender my grateful thanks.

I am also grateful to *The British Medical Journal* and *The Practitioner* for permission to reproduce illustrations from personal communications on sarcoma of the tongue and denture granuloma.

Lastly, I must place on record my keen appreciation of Mr. CHARLES MACMILLAN, of Messrs. E. & S. Livingstone, without whose guidance and encouragement the book would never have been completed.

J. COSBIE ROSS

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CONTENTS

CHAPTER I

CLINICAL EXAMINATION

EXAMINATION OF THE BUCCAL CAVITY

THE mouth lends itself readily to a satisfactory and complete examination. In spite of this obvious fact it is lamentable that only too often an early epithelioma, perhaps lurking beneath the lateral border of the tongue, escapes observation solely because of the lack of systematic examination.

It is best to conduct the examination of the buccal cavity in stages:

(1) The lips and buccal orifice.
(2) The vestibule.
(3) The gums and teeth.
(4) The floor of the mouth and ventral aspect of the tongue.
(5) The dorsum of the tongue.
(6) The hard and soft palate and the fauces.
(7) The buccal pharynx.

(1) **The Lips and Buccal Orifice.**—Lesions of the lips and buccal orifice are usually self-evident and require no elaboration. Scars radiating from the angle of the mouth strongly suggest congenital syphilis. An epithelioma, or a median crack, will be immediately apparent.

(2) **The Vestibule.**—This term includes the inner aspects of the lip and cheek. An advantage of making the examination of the mouth in this particular order is that the patient gains confidence as he finds that the necessary manipulations, such as retracting the cheek in order to inspect the gum-cheek sulcus, are painless. Having thus gained the patient's confidence and co-operation, the subsequent and somewhat more uncomfortable parts of the examination can be carried out with greater facility. To approach a patient hurriedly, and to attempt to depress the tongue immediately, is to invite him to gag. The depth of the sulcus between gum and lip, and between gum and cheek, is

inspected and palpated, and is compared with the opposite side. A dental cyst, a root abscess or malignant tumour may deform the sulcus in this way. The orifice of Stenson's duct is examined and gentle massage applied to ascertain the appearance and consistency of the parotid saliva.

(3) **The Gums and Teeth.**—The gums are examined for evidence of pigmentation, congestion of the gingival margin and for recession. The interdental papillæ are inspected and gentle pressure is exerted on possible pockets of pus. It is a wise precaution to examine the gums both with and without dentures, if such are worn, especially if the presence of a denture granuloma or denture ulcer is suspected.

The teeth are next dealt with, carefully enumerated, and the date of the eruption of the teeth remembered. A missing permanent tooth, or a persistent deciduous tooth, may indicate a follicular odontome. The teeth are also tested for mobility and dental occlusion should be noted.

(4) **The Floor of the Mouth and Ventral Aspect of the Tongue.**—The patient is requested to touch the roof of the mouth with the tip of the tongue, in order to demonstrate the floor of the mouth and ventral aspect of the tongue. The obliquely lying fold, the plica sublingualis, is inspected, and so also is the orifice of Wharton's duct, the duct of the submaxillary salivary gland, which opens lateral to the lingual frænum. Ulceration around a calculus impacted in Wharton's duct may be mistaken for a malignant growth.

(5) **The Dorsum of the Tongue.**—The dorsum of the tongue may provide invaluable information regarding the general condition of the patient. Such examples are the furred tongue of toxæmia, and the dry, leathery-brown tongue of uræmia and kidney failure. Inspection must be carried out in a good light with the aid of a spatula, which may be necessary to demonstrate that portion of the tongue adjoining the anterior pillar of the fauces, a frequent site of a carcinomatous ulcer. It may be helpful to repeat inspection after drying the surface with cotton wool or blotting paper, a procedure which sometimes clarifies the pathological appearances.

The size of the tongue is considered and the lateral border examined for indentations made by adjacent teeth. If possible, the examination is supplemented by inspection of the posterior third of the tongue by means of a laryngeal mirror.

Palpation.—Inspection is followed by palpation, which should never be omitted if there is reasonable cause to suspect a local lesion of the tongue. Palpation reveals the presence of induration, as in carcinoma, or its absence, as in tuberculous ulcer. The greatest value of palpation in this connection is, however, the demonstration of an entirely unsuspected malignant ulcer lurking in the posterior third of the tongue. To feel this, the forefinger is passed over the dorsum backwards and downwards over the surface of the posterior third, as far as the vallecular fossa. The use of 2 per cent. decicaine as a local anæsthetic facilitates the examination, but with practice may frequently be omitted.

Mobility.—The patient is now asked to protrude his tongue fully, and any degree of ankyloglossia (fixation), or deviation, is noted. Deviation is usually due to malignant disease, especially when the growth is situated near the anterior pillar of the fauces. In such a case the tip of the tongue is deviated towards the side of the lesion. Another cause of deviation is paralysis of one hypoglossal nerve, when the tongue veers towards the paralysed side. The commonest cause of ankyloglossia is malignant disease.

(6) **The Palate, the Tonsils, and the Fauces:**

THE HARD PALATE.—This may be high and excessively arched as in the presence of adenoids, or a cleft palate may be present. Occasionally, a symptomless swelling is seen in the midline and proves to be a rounded boss of bone of congenital origin, known as the torus palatinus. Inspection, which is facilitated by requesting the patient to tilt his head backwards, may reveal a hole which is almost pathognomic of syphilis provided no operation has been performed. The indentation, even erosion, made by the old-fashioned suction pad must not be confused with an early epithelioma.

THE SOFT PALATE AND FAUCES.—A bifid uvula of congenital origin may be seen. Asymmetry of the palate and fauces is usually caused by scar tissue resulting from radium treatment, healed lupus, etc.

THE TONSILS.—Inspection sometimes reveals enlargement or inflammation of the tonsil, or bulging of the anterior pillar of the fauces, as in peritonsillar abscess (quinsy). Caseating matter is occasionally present and if not visible on the surface

may be expressed from the crypts, when the tonsil is gently massaged with the spatula.

(7) **The Buccal Pharynx.**—This cavity appears excessively capacious in cases of cleft palate, but otherwise is not frequently affected by pathological conditions. Bulging due to a retropharyngeal abscess, and the various manifestations of syphilis must be kept in mind when carrying out the examination.

EXAMINATION OF THE NECK

This consists of:

A general survey and inspection.
Palpation.
Auscultation.

General Survey and Inspection.—The neck may be short and stunted as in the congenital anomaly known as the Klippel-Feil syndrome, or a torticollis (wry-neck) or a goitre may be present. A general survey of the patient must never be omitted, as valuable evidence, pointing the way to the diagnosis, may be obtained. For example, the waxy skin, the loss of hair and eyebrows, the bradycardia may explain supraclavicular fatty pads and reveal the condition to be myxœdema.

Again, the exophthalmos, tachycardia, sweating, and tremors of the hands indicate that the swelling in the neck is a toxic goitre. If a swelling is present, the exact site is carefully noted and the patient is asked to swallow; if the swelling is tethered to the pretracheal fascia it will ascend with deglutition, while if the swelling originates in the thyroglossal tract it will also ascend on protrusion of the tongue. In the latter case there is a right and a wrong way of carrying out the examination. It is necessary to request the patient first to open his mouth widely and for the examiner to steady the lower jaw with his hand; if the patient is then asked to protrude his tongue fully, a true ascent of the swelling will be seen. Should the patient be simply asked to put out his tongue, the accompanying action of opening the mouth impairs the accuracy of the observation, as the hyoid is dropped by relaxation of the suprahyoid muscles attached to the lower jaw.

Careful inspection sometimes reveals the arterial pulsation of an aneurysm, or the venous pulsation seen at the root of the neck in cardiac conditions. Again, the minute vesicles, containing clear fluid, in cystic hygroma may reward a painstaking search.

Palpation.—Palpation must be conducted in an orderly and methodical fashion; it is convenient to divide the neck for this purpose into its anatomical anterior and posterior triangles. In dealing with the former, it is advisable to commence the examination in the submental region, progressing backwards to the submaxillary triangle and then down the neck, keeping anterior to the sternomastoid muscle. In the examination of the posterior triangle it is convenient to start in the supraclavicular region and to work upwards, posterior to the sternomastoid. The relationship of a swelling to the sternomastoid muscle may be important, and can be determined in the following manner. The patient is instructed to turn the point of the chin away from the affected side and to thrust strongly against the examiner's hand, which resists the pressure. The muscle is thus brought into action and its relationship to the swelling is clearly defined (Fig. 1). At the same time the additional point, as to whether the swelling is attached to the muscle, can be established. When carrying out the examination for lymphatic glands, certain groups are liable to be overlooked unless especially sought, i.e., the pre- and post-auricular nodes, the gland with the facial artery and the chain of lymphatic glands accompanying the external jugular vein. It is

FIG. 1

The relationship of a swelling to the sternomastoid

The muscle stands out clearly

almost as essential to obtain relaxation of the muscles when palpating the neck as in abdominal examination. If the patient is informed that his neck is to be examined his usual reaction is to rear the head backwards, thus rendering the muscles tense and resistant. Relaxation can be readily achieved by tilting the head slightly downwards, forwards and towards

FIG. 2

Examination of the neck

the side which is first to be examined. This implies that the examiner stands *behind* the patient (Fig. 2).

The test for translucency is included in this part of the examination for convenience. It is astonishing how frequently this simple test is omitted, especially as the finding may clinch the diagnosis beyond dispute. In the shade, or preferably a darkened room, test the normal skin translucency with a pocket torch. Then apply the lighted torch to one border of the swelling; if the circle of translucent skin is increased adjacent to the swelling by a peninsula corresponding to the latter, the swelling is translucent. Similarly, in a larger swelling the light may be applied to one side and the beam directed transversely through it. It may be mentioned here that the only

swellings in the neck which are translucent are cystic hygroma and lymphatic cyst.

Whatever the site, the presence of a swelling necessitates the examiner establishing certain facts, from which the diagnosis may ultimately be deduced. These facts are eight in number and are as follows:

Site.
Size.
Shape.
Surface, smooth or irregular.
Consistency.
Is the swelling fixed to skin?
Is the swelling fixed to deeper structures?
Are there any secondary lymphatic glands?

Site not only implies the actual part of the neck involved, but also the level of the swelling in relation to the surface, e.g., intradermal, subcutaneous, subfascial, submuscular, etc. The shape is obviously of importance, as for example in a generalised enlargement of the thyroid the shape of the swelling makes the diagnosis inevitable.

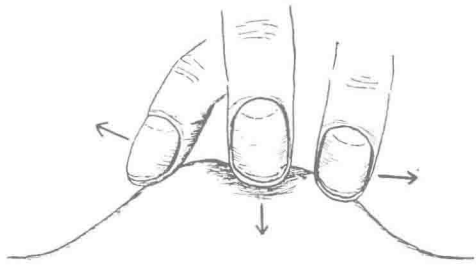

FIG. 3
The test for fluctuation

The consistency is of great importance. Is the swelling stony hard as in malignant disease, elastic as in lymphadenoma, brawny as in cellulitis, or fluctuating? Fluctuation indicates the presence of fluid in a closed space. This test must be carried out in two planes, at right angles to one another, as fluctuation in one plane only is of no significance. The index and middle fingers of one hand are placed near the periphery of the swelling, one on either side. These are the "resting" fingers and are pushed outwards and upwards (apart) when the single "moving" finger, usually the index of the opposite hand, is pressed firmly into the centre of the swelling (Fig. 3).

Fixation to skin may be obvious, but a lesser degree may

be identified by the dimpling of the skin when the swelling is pushed towards the opposite side of the neck. Confirmation is obtained by testing the normal skin "ripple" on the opposite side, for purposes of comparison. Fixation to deeper structures may involve muscle, or the transverse processes of the cervical vertebræ. Apart from the more fibrotic types of tuberculosis, this usually indicates malignant disease.

The presence of secondary lymphatic glands requires no elaboration.

A further question must be answered concerning swellings which are pulsatile. Is the pulsation expansile as in an aneurysm, or is it projectile as in a transmitted pulsation when a hard swelling is overlying, and possibly attached to, the carotid artery?

Generally speaking, all swellings must fall into one of six categories:

(1) Congenital.
(2) Traumatic.
(3) Inflammatory.
(4) Neoplastic.
(5) Degenerative.
(6) Parasitic.

Auscultation.—This does not constitute an important part of the examination, but may provide confirmatory evidence. A systolic murmur is sometimes heard in severe cases of exophthalmic goitre and a systolic bruit is also present over an aneurysm. In the latter, the murmur can be eliminated by compressing the artery proximal to the aneurysm, thus clinching the diagnosis. Auscultation may also be helpful in establishing deviation of the trachea.

CHAPTER II

THE LIPS

LESIONS of the lip may be divided into congenital, traumatic, inflammatory, and neoplastic categories. Hare-lip, or cleft lip as it is described in American text-books, is dealt with in a separate section (Chapter VI).

CONGENITAL LESIONS

Apart from hare-lip, congenital lesions consist of macrocheilia or enlarged lip, hypertrophy and fistula of the lip, macro- and microstoma and facial cleft. Congenital ridges, or pits, are rarely seen (Fig. 4).

FIG. 4

Congenital ridges on the red margin of the lower lip

FIG. 5

Hypertrophy of the upper lip following erysipelas

MACROCHEILIA

Lymphangioma, cavernous angioma, and plexiform neurofibromatosis may cause a diffuse enlargement of the lip. More common causes, although not of congenital origin, include syphilis and chronic lymphangitis following entrance of infection through a fissure or crack (Fig. 5).