MEDICAL PRACTICE

Occasional Review

Early diagnosis of cancer in the head and neck

H J SHAW

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Malignant tumours of the head and neck account for only 10% of all human cancers, when the more common skin cancers in the region are excluded. In addition the management of these tumours is the concern of several different specialties whose interests overlap and in some degree still compete within the head and neck region. Add to this the comparative rarity of the appearance and detection of these tumours in general practice and it will be seen that important factors weigh against their early diagnosis and satisfactory management despite their relative accessibility and often manifest presence. Over 90% of them are squamous carcinomas, mainly well differentiated and usually slow growing.

Why early diagnosis?

Early diagnosis remains the greatest factor in securing improved cure rates. Despite much concentration of clinical effort and advances in diagnostic technique the practical difficulties of access to many of the more common intrathoracic and abdominal neoplasms combined with their aggressive natural history continue to render their early diagnosis an intractable and continuing problem. By contrast the whole of the head and neck region is readily accessible. Furthermore, the nature of these tumours is such that they tend to remain localised for long periods within their tissue of origin, and even when metastasis occurs it usually remains confined to lymphatics in the head and neck region for many months. Metastasis below the clavicles is relatively rare for most tumours until the later stages of the disease. But despite the ease with which the mouth, for example,

may be inspected, in a review of a large series of floor-of-mouth cancers at this hospital over two-thirds were found to be in the T3 category, being over 4 cm in diameter, when first seen.

Nevertheless, the cure rates for all cases of head and neck cancer, excluding the common skin tumours, have improved from about 25% a generation ago to about 40-45% today. In addition the cure rate for early or T1 tumours confined to their tissue of origin exceeds 70% for most sites in the region. Clearly, therefore, a sound basis exists for still greater efforts to improve the early detection and diagnosis of these tumours.

How can it be achieved?

Of the four people mainly concerned with diagnosis—namely, the patient, the family doctor or dental surgeon, and the surgical specialist—probably the family doctor or dentist has the most crucial role. Unfortunately patients often delay consulting their doctor or dentist, but once advice is sought it is vital that the significance of any symptoms or clinically evident lesions are not missed. Often the family doctor or dentist is at a disadvantage, since he may rarely encounter these tumours in his practice, but there are two golden rules. Firstly, any apparently simple lesion or persistent symptom in an adult that has been present for three weeks or more should never be dismissed as trivial. Secondly, if there is any doubt about the diagnosis the lesion must never be treated as functional or inflammatory without committing the patient to an early return visit and scrutiny. If the lesion or symptoms are still present in any form after a maximum of three weeks' treatment the patient must at once be referred to a specialist if the doctor or dentist is not prepared to take responsibility for further investigations himself.

Difficulties of diagnosis

There are several obvious difficulties in making a diagnosis, such as an uncooperative patient, clinical problems of examination, or problems of differentiation. But there are other common

Royal Marsden Hospital, London SW3 6JJ**H J SHAW, FRCS, consultant surgeon, head and neck unit**

pitfalls, again related to the rarity of these lesions in general practice. The combination of a busy doctor and a busy patient who makes light of a small neck swelling, perhaps attributing it to a recent sore throat, may cause misdiagnosis and delay identification of a neoplasm in the upper air or food passages that has already metastasised. The same combination of circumstances may delay the diagnosis of a small, almost symptomless cancer in the mouth or throat. Furthermore, a change in a long established area of keratosis either in the mouth or on the skin may pass unnoticed by the patient and may easily escape detection at a routine medical examination.

Patients often give an inaccurate or misleading history, and some patients whose well-known neuroses and functional disorders in the head and neck region have plagued their doctors for years may one day develop a genuine neoplasm.

Most of these difficulties may be overcome by constant clinical vigilance and observance of the rules given above. There remains another difficulty, however, that concerns the patient who has been rightly referred to hospital with a suspected tumour and who has been told by the hospital on the strength of one negative or inconclusive biopsy that all is well. In the event that the hospital has made no provision for a follow-up attendance it is essential for the practitioner to continue to see and treat the patient until he has satisfied himself that the lesion has healed or is clinically benign. Errors in taking a representative biopsy specimen or reporting the results of biopsy are not unknown, and their results may sometimes be tragic.

Clinical examples

SKIN

Recognising the common skin cancers presents no great difficulty when the lesion is florid, but small, early lesions may often pass unrecognized since they are often symptomless. Thus clinical suspicion followed by prompt histological diagnosis and treatment should not be deferred (fig 1).

FIG 1—Early infiltrative basal cell carcinoma at side of nose.

There is a tendency to regard basal cell carcinomas as trivial. Some of these tumours, however, are aggressively invasive and require prompt recognition and treatment for cure. Multicentric development of these lesions may also pose problems for effective cure.

Melanoma of the skin of the head and neck is common and represents about a third of all skin melanomas. In its early stages it is often curable by local surgery and then has the best prognosis of any skin site.

MOUTH

About two thirds of all head and neck cancers, excluding those of the skin, begin in the mouth and pharynx. A small persistent nodule

or fissure on the tongue or roughening of the gum epithelium or thickening in a longstanding area of buccal keratosis must be viewed with suspicion until proved innocent by biopsy (figs 2 and 3). Patients with dentures often attribute the latter type of lesions to chafing and make light of it. This may or may not be correct. Any longstanding chronic irritation or inflammation of oral mucosa may lead to malignant change.

As a rule the aphthous mouth ulcer has a characteristic appearance and is usually transient over a few days, but if it persists for several weeks biopsy should not be delayed (figs 4 and 5).

FIG 2—Early squamous carcinoma at junction of anterior and posterior tongue.

FIG 3—Scars from successful treatment of squamous carcinoma of mouth floor. Second cancer is shown developing on gum margin.

FIG 4—Large aphthous ulcer of lower lip. FIG 5—Superficial invasive squamous carcinoma of lower lip.

FIG 6—Small mixed salivary adenoma of parotid gland.

MAJOR SALIVARY GLANDS

Any unexplained persistent swelling in the area of the parotid or submaxillary salivary glands must be taken seriously, particularly if it is symptomless and unrelated to eating. In adults most parotid salivary gland swellings are neoplasms, usually of the benign mixed salivary type, but a few may be malignant from the start (fig 6). All need prompt diagnosis and treatment to prevent recurrence. By contrast adult submaxillary gland swellings are mostly inflammatory, but a small minority of symptomless swellings may be malignant neoplasms—usually the dangerous adenoid-cystic carcinoma—and may easily be missed, with serious consequences.

MINOR SALIVARY GLANDS

These small, ectopic mucus glands are present throughout the mucosa of the upper air and food passages. Not uncommonly, mixed salivary-type benign tumours or adenoid-cystic carcinomas in about equal proportion may develop in them (fig 7). Growth is stealthy and symptomless for many months or sometimes years, although often with more rapid recent increase in size. But if recognition is prompt and treatment adequate good results can certainly be obtained.

FIG 7—Early ulceration and submucosal extension in palate by adenoid-cystic carcinoma.

LARYNX AND PHARYNX

Without experience in the use of the laryngeal mirror it is not possible to examine the larynx or pharynx. Nevertheless, any degree of persistent hoarseness, change in voice quality, pain, or even discomfort in the throat or obstruction to the airway demands a full specialist investigation without delay (fig 8). Such symptoms are particularly significant in heavy smokers, spirit drinkers, or patients with established chronic laryngitis and continually subject to excessive vocal stress.

FIG 8—Squamous carcinoma confined to left vocal cord.

OESOPHAGUS

Tumours in the oesophagus give no symptoms other than gradually increasing difficulty with swallowing and sometimes also local discomfort and choking attacks. Such persistent symptoms are often functional but must never be assumed to be so without full specialist investigation, which should include direct endoscopy. Contrast radiography may not always show an early tumour.

It is useful to remember that dysphagia for solids is most likely to be due to organic causes, whereas dysphagia for liquids only is probably functional in the absence of other symptoms.

NOSE AND PARANASAL SINUSES

Malignant tumours in the nose and paranasal sinuses are relatively rare. Early diagnosis is much complicated by early symptoms being usually trivial and similar to those of common infections and allergies. There are also difficulties of clinical examination. Nevertheless, any unilateral symptoms of persistent discharge, obstruction, pain, or swelling should alert the examiner and demand specialist investigation. Nose bleeding alone is seldom associated with early tumours of the nose or sinuses. Nor has any true association been shown between chronic infection and the development of cancer in this region (figs 9 and 10).

FIG 9—Early verrucous carcinoma of nasal septum.

NASOPHARYNX

Malignant tumours in the nasopharynx, which are uncommon in Europeans, may be treated with good results in early cases. Unilateral persistent Eustachian or nasal obstruction in adults, unilateral neuralgic pains in the face or head, and an unexplained oculomotor nerve palsy may be early signals of the presence of nasopharyngeal carcinoma. Enlarged lymph nodes in the posterior neck triangles on one or both sides are common and typical of the disease, often progressing to a large size without other symptoms (fig 11).

EARS

The pinna is a fairly common site for basal and squamous cell carcinomas, which are easily identified and treated in the early stages. The external ear canal, middle ear, and mastoid are rare sites for cancer, the latter two sites representing probably the greatest therapeutic challenge in the whole region. In contrast to cancer of the nose and sinuses cancer in the ear is usually preceded by years of chronic suppuration, the onset of pain often heralding a malignant change. Even so, the association is again rare when considering the frequency of chronic ear infection.

THYROID

In most thyroid clinics it is now accepted that the single thyroid nodule or unilateral lobe enlargement must be subjected to surgical exploration and removal after all appropriate function tests and antibody titres have been assessed. Such nodules are often symptomless and discovered accidentally. Hence there may be difficulty in persuading the patient, usually a woman, to undergo an operation for their

FIG 10—Ethmoidal carcinoma. No pain, bleeding, or nasal obstruction was present. FIG 11—Cervical metastases from carcinoma of nasopharynx. Primary lesion was small and symptomless. FIG 12—Diffuse local infiltration with early fungation and fixation of metastatic node mass after injudicious biopsy.

removal. But since up to 15% of such nodules may prove to be differentiated thyroid cancer with an excellent cure rate there is a good case for firm advice to seek expert surgical treatment.

CERVICAL LYMPHADENOPATHY

Palpable lymph node enlargement of whatever size in adults is abnormal. If it is unilateral or asymmetric it assumes even greater importance in relation to head and neck cancer. There is therefore much danger in assuming it to be inflammatory and treating it with systemic antibiotics and casual follow-up. This danger is compounded by the fact that in nodes affected by tumour there is usually a degree of inflammatory reaction that will respond to antibiotics, thus leading to partial reduction of the swelling and a false sense of security. Such treatment is of no significance unless the swelling subsides completely.

Some 90% of asymmetric cervical lymph node enlargements in adults are due to metastases from a primary tumour in the head and neck region. For this reason alone the essential and urgent primary need is for specialist examination of the whole region, especially the mucous membranes of the upper air and food passages, probably including direct endoscopy. Surgical excision or incision of the neck mass before this is done will be prejudicial to the successful outcome of treatment if the node is malignant. This error is all the more serious if the surgeon cannot or will not take full responsibility for effective treatment and continued care. In the light of present knowledge such imprudent intervention without proper investigation must be considered to be professional malpractice (fig 12).

Patients especially at risk

Particular vigilance is needed to detect early malignant change in certain people. Adults aged over 45 who are heavy smokers and drinkers, especially of spirits, are certainly at risk as regards their mouth, pharynx, and larynx. In addition, keratosis in mucous membranes (leukoplakia) or on the skin must be assessed regularly and critically. The latter particularly concerns patients of fair complexion or who have been long exposed to the actinic effects of strong sunlight. Recent change in any established skin lesion must be subjected to scrutiny and probably biopsy. Any chronic oral mucositis with or without obvious cause must be checked regularly and treated. It should also be remembered that oral cancer is no longer rare in women. The past 20 years has seen a sharp rise in the incidence in women, probably connected with more smoking and drinking.

Chronic laryngitis or pharyngitis may also predispose to malignant change but, curiously, infective or allergic sinusitis and rhinitis have no proved association with cancer. Workers in the furniture and nickel industries, however, do have an

increased tendency to develop certain types of nasal or sinus cancer. Whenever possible advice must be given to reduce or eliminate mucosal exposure to any chronic irritants of carcinogenic potential.

Patients previously irradiated for benign lesions of the face or neck, or indeed after successful irradiation for cancer anywhere in the region, will all have an increased risk of developing other neoplasms within the treated area later in life.

Finally, any patient who has been successfully treated for head and neck cancer, especially in oral, laryngeal, or pharyngeal mucous membranes, has an increased chance of developing second or subsequent primary cancers in the same region or elsewhere in the air and upper food passages.

Pattern of referral

In the event of a proved or likely diagnosis of cancer the fate of the patient depends to a large extent on the initial referral decision made by his general practitioner or dentist. The responsibility is great and well recognized but the fact requires emphasis.

Partly because of the small relative incidence and the need for improved management there is a growing impetus to establish centres for the special investigation and treatment of head and neck tumours. Although as yet these centres are few, it is hoped that they will be set up in most of the larger general hospital groups and in all cancer hospitals. Already in many hospitals throughout the country workers from the particular surgical specialties concerned have gained experience in this field and have established joint head and neck tumour clinics with radiotherapists, chemotherapists, and others. Already the Association of Head and Neck Oncologists of Great Britain is planning the future training of postgraduates in head and neck surgery.

There is therefore a need to emphasise that care must now be taken to refer these patients to the nearest surgeons who are known to have experience and a chief interest in this work and who will be prepared to take on the main responsibility for investigation, treatment, and continued care of patients in close co-operation not only with specialist colleagues but with the family doctor and throughout all eventualities. Team work is essential for all cancer treatment.

This may entail the inconvenience of travel and even some expense for the patient and his relatives, but this is surely in his best interests and must be helpfully arranged. There may be some exceptions to this policy, but in general it should remain the correct mode of action today and for the future.

Conclusions

Apart from skin tumours cancer at other sites in the head and neck is uncommon and is seldom seen by general practitioners or dentists. It has an excellent prognosis at most sites if diagnosed early and when confined to its tissue of origin. Metastasis tends to be late, regional, and above the clavicles. Careful attention to persistent symptoms and clinical vigilance at routine examinations is essential. If in doubt about any lesion there is no place for a wait-and-see policy. Speculative treatment

with antibiotics or other medication can give a false sense of security. If the lesion does not resolve rapidly and completely suspicion must remain high and further investigation be initiated without more delay.

When a diagnosis of cancer is probable the fate of the patient may depend literally on the initial pattern of referral. Fortunately an increasing number of surgeons in the larger centres of population today have special training and interest in this complex field. They exist to provide the best service, and they should be used.

Hospital Topics

Growth of medical laboratory work during 1920-2000

H F BARNARD

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Summary

The volume of work carried out by pathology departments has grown exponentially since they were first opened, and this is likely to continue to the end of the century. Computer diagnosis may modify the process.

Introduction

The growth of hospital pathology departments since their establishment in the first half of this century has been persistent and is likely to continue to the end of the century. The increase in work undertaken in the Beverley District (fig 1) is probably typical and is described here.

Pathology work has been recorded in different ways in different decades (fig 2), and all are imperfect measures of output, effort,

FIG 2—Sources of data.

FIG 1—Increase in pathology work in Beverley District, 1920-2000.

or utility, depending on one's objective. (The DHSS, as I see it, wants man-hours of output—the "load"—to set beside the man-hours it pays for.) Nevertheless, the figures we have are reasonable measures of change in output and, broadly speaking, reflect experience. During the early decades the work of this area was carried out at Hull Royal Infirmary, and for that period I have taken, on the basis of population, one-sixth of the work of Hull Royal Infirmary as being for the Beverley District. Much searching of records disclosed runs of years of fairly reliable and intrinsically comparable figures. Plots of these runs were lined up on a graph. Overlapping records of work—that is, those given in two ways—allowed some checking of these changes. Moreover, we have locally some good memories that span the period.

Past growth

The laboratory at Hull Royal Infirmary was started in 1922 "by a donation from Thomas Bailey," and no longer were "specimens sent to Leeds and London." In 1925 an extension was opened "to deal with the large increase in work." In 1929 the annual report gives the numbers of tests done (along with "the egg appeal has reached £54 000," and "the potato growing