

practice; all branches of pathology except haematology; radiology; radiotherapy and oncology; ear, nose, and throat surgery; ophthalmology; clinical pharmacology; and others. Service in one or other of these would often be more socially valuable than attempting to struggle into the ranks of general physicians, surgeons, and obstetricians and gynaecologists, where competition may be unnecessarily fierce and unrewarding. Satisfying and valuable careers are to be had in all of these shortage specialties. They are all important in the nexus of medicine.

### Basic medical sciences

The basic medical sciences of anatomy, physiology, biochemistry, psychology, genetics, and sociology as applied to medicine all lack teachers who are medically qualified. Together with pharmacology, these subjects are taught more and more to medical students by scientists, none of whom have clinical experience and so must teach their subjects as pure science. Medically qualified teachers see the basic sciences more in relation to patients because they have had clinical experience. This is attractive to medical students, who see medicine as applied science and want what they learn of the basic medical sciences to be relevant to their future work, which is more likely to be clinical than not.

Thus, medically qualified teachers have an important role to play in bridging the concepts of the many separate disciplines. They can help to motivate students to learn the basic medical sciences because they witness its relevance. I do not denigrate

the real contribution of scientists, but they need doctors in their midst to lighten their teaching. This helps to keep the eyes of every teacher on the main task of undergraduate teaching in medicine, which is to prepare students for clinical work and to understand its basis. This needs medical teachers who are devoted to the twin causes of their subject and basic medical education, which cannot be sustained purely by a stream of junior doctors who may revert temporarily to a basic science to work for part I of their higher clinical diplomas.

### Medical education

There is now a demand for the study of medical education in its own right and not linked to a specific subject. Education and its techniques in imparting knowledge, skills, and attitudes and in assessment are of more than passing interest. They are central to the functions of medical schools, faculties, and universities, and all other medical educational bodies such as royal colleges and faculties, and even of the General Medical Council and the councils for postgraduate medical education. In medicine education has developed haphazardly—in an almost amateur fashion. It now needs professionals to take heed of advances in educational method and theory outside medicine and relate them to the specific requirements of medicine, and also to contribute to general education elsewhere. Many of the professionals will be non-medical, but they need to co-operate with medical professionals too, as in many other disciplines.

In the next article I shall discuss a career in community medicine.

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## Lesson of the Week

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### Leg ulcers that do not heal

J S ACKROYD, A E YOUNG

We report on three patients to illustrate the different ways in which malignancy may be neglected or misdiagnosed in a skin ulcer of long duration.

#### Case reports

*Case 1*—A 63 year old Portuguese man presented in 1976 complaining of recurrent ulceration of his foot. When he was 7 years old his foot was crushed under a stone, and he had had a subtalar amputation. The stump was first ulcerated in 1973 but healed when new boots were fitted. In 1974 diabetes mellitus was diagnosed and was controlled with diet and chlorpropamide tablets. In 1975 he had numb patches on one hand and on his face that were thought to be due to mono-

**A skin ulcer that fails to heal within four months should be biopsied**

neuritis multiplex secondary to diabetes. He was also a heavy smoker. At admission his diabetes was poorly controlled, and he had an infected shallow ulcer on the dorsum of his amputation stump. Blood pressure, measured by the Doppler technique, was normal at the ankle, but on arteriography his arteries were diffusely calcified, with only the anterior tibial artery filling below the popliteal trifurcation. His ulcer was thought to be due to a combination of trauma and diabetes, and possibly ischaemic disease. He returned to Portugal without further treatment and reappeared in 1979; he still had the ulcer. A biopsy specimen showed a moderately differentiated squamous cell carcinoma. His leg was amputated below the knee.

*Case 2*—In 1976 a 71 year old woman presented with a short history of an ulcer on the posterolateral aspect of her calf. Excision and graft were advised, but she failed to attend because

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St Thomas's Hospital, London SE1

J S ACKROYD, FRCS, honorary senior registrar in surgery  
A E YOUNG, MChIR, FRCS, consultant surgeon

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her daughter had just died. Three years later she was admitted with an acute haemolytic anaemia; she still had the ulcer. In 1980 she was readmitted with haemolysis. The ulcer had the clinical appearance of a "venous ulcer" and was treated by skin grafting. The graft "took" completely, and she was discharged home, healed. Breakdown occurred rapidly, however, and six months later the biopsy specimen showed that the lesion was a basal cell carcinoma. Wide excision and grafting was then done.

*Case 3*—A 51 year old man presented with a 10-year history of an ulcer on the posteromedial aspect of his right calf. This had never healed and had gradually got larger. Different surgical opinions were sought during those years, and the ulcer was always diagnosed as a chronic venous ulcer. His long saphenous veins had been stripped out four years earlier. The biopsy specimen showed that the ulcer was a basal cell carcinoma. Excision and grafting were done.

### Discussion

These three cases illustrate well the different ways in which the diagnosis of malignant leg ulcers may be delayed. In the patient in case 1 obvious aetiological factors such as trauma, diabetes, peripheral neuropathy, and arteriosclerotic disease led to a delay in biopsy. The patient in case 2 illustrates how easily patients, particularly elderly women, become labelled as having "venous"

ulcers on very little evidence. It also shows the interesting phenomenon of a skin graft "taking" on a malignant ulcer. In the patient in case 3 the skin surrounding the excised ulcer showed histological evidence of some venous stasis, suggesting that this was a possible aetiological factor. But during the 10 years in which the patient's ulcer was enlarging no attempt had been made to confirm or refute the diagnosis. Squamous cell carcinoma developing in an existing venous ulcer, sometimes called Marjolin's ulcer,<sup>1</sup> has been reported.<sup>2-4</sup>

Most leg ulcers will heal within four months, but often not without difficulty and frustration. Failure to heal may be due to an error in diagnosis and the ulcer being malignant. It is prudent therefore to remember that any ulcer on the lower leg that fails to heal within four months should be biopsied.

### References

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- 3 Black W. Neoplastic disease occurring in varicose ulcers or eczema: a report of six cases. *Br J Cancer* 1952;**6**:120-6.
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*What could be the cause of a cranial whistle in a healthy boy of 5, synchronous with the heart's beat, audible even at a distance over the mastoid, but occasionally disappearing for many hours and even days, especially during sleep? The whistle was noticed by the parents over three months ago.*

A cranial whistle or bruit should be assumed to be caused by a vascular abnormality until proved otherwise. Surprisingly, full investigation by modern methods of angiography sometimes fails to show any abnormality, particularly in children and especially in babies. When localised as in the questioner's patient, there is a greater chance of discovering an abnormality. The disappearance of the bruit for hours or days is not evidence for or against an underlying disease. The factors responsible for the generation of a bruit are clearly delicately balanced, as shown by the occurrence of sound during systolic blood flow and not during diastole. The reason for a bruit (which may be heard across the room) in children in whom no abnormality can be shown remains a mystery. In others a cerebral, meningeal, or skull arteriovenous malformation is present. The bruit is then presumably related to the rapid shunting of blood from an arterial to a venous phase. On very rare occasions in younger children a vascular neoplasm is the cause. The fact that the questioner's patient is in good health does not preclude the need for careful investigation, initially by computed tomography and then by angiography.—KENNETH TILL, retired neurological surgeon, London.

*I have a male Vietnamese patient who has recently immigrated to this country. During the Vietnam war he was in contact with an American defoliating material known as "Agent Orange." He has been told that this may have teratogenic effects on any of his future offspring. Is there any basis for his fear?*

Agent Orange (2,4,5-trichlorophenoxyacetic acid, 2,4,5-T) as used in Vietnam was contaminated with dioxins which in laboratory animals exhibit various forms of serious toxicity including teratogenic effects in the offspring of women exposed during pregnancy. Exhaustive tests on 2,4,5-T of the higher grades of purity now manufactured have shown it to be free from serious toxicity. Claims that the agricultural and forestry use of 2,4,5-T have caused birth defects in man are based on inadequately controlled epidemiological studies and may safely be disregarded. In any case the alleged effects were mediated by exposure of the mother during pregnancy and

not of the father before conception. The most toxic dioxin contaminant (2,3,7,8-tetrachlorodibenzo-p-dioxin) in the 2,4,5-T used in Vietnam does not seem to produce any of its effects via a genotoxic mechanism. In other words it is not a mutagen. There is therefore no reason for your male Vietnamese patient to fear that he will be more likely to sire defective offspring because of his earlier exposure to Agent Orange. Further details of the research on which the above statements are based may be found in *The science of 2,4,5-T and associated phenoxyherbicides*.<sup>1</sup>—FRANCIS J C ROE, independent consultant in toxicology and cancer research, London.

<sup>1</sup> Bovey RW, Young AL. *The science of 2,4,5-T and associated phenoxyherbicides*. London: John Wiley and Son, 1980.

*Would you please explain the terms "real time," "B mode," and "M mode" that occur in reports on ultrasonography examination.*

Unfortunately, there is no universal agreement for ultrasound terminology, and many terms are misused and have different interpretations in different countries. "Real time" scanners are ultrasound machines in which the ultrasound beam is scanned through the area of interest by some automatic electronic or mechanical system. Images are obtained at the rate of 10-30 per second and therefore allow the operator to observe movements in the scanning field as they occur "in real time." The term "dynamic scanning" is also used to describe the same apparatus. "B mode" is the term that should strictly speaking be applied only to ultrasound images in which the echo information is displayed as changes in brightness. By common usage, however, the term has come to be applied to all two-dimensional ultrasound displays (sectional or tomographic images). The term "B scan" is frequently and incorrectly used to describe this form of display. "M mode" describes a form of ultrasound information display in which the motion of moving structures is recorded graphically. Many other terms are also applied with the same meaning—for example, time position scan (TP scan) and time motion scan (TM scan). This form of display has been used for many years to quantify the amplitude and velocity of movement of the cardiac valves. A glossary of the preferred definitions of ultrasound terms is included in *Basic Clinical Ultrasound*.<sup>1</sup>—H B MEIRE, consultant radiologist, London.

<sup>1</sup> Meire HB, Farrant PF. *Basic clinical ultrasound*. London: British Institute of Radiology, 1982.