

Rising skin cancer incidence: current and future impact on dermatological surgery

Introduction

Dermatological surgery has a very long history, which according to Marmelzat may be older than the human race.¹ He describes examples of prehistoric animals removing parasites that are causing skin irritation, licking or putting pressure on wounds, removal of foreign bodies and heating or cooling skin lesions as primitive treatments for dermatological problems. Later on, prehistoric humans dressed wounds and relieved pain using natural substances. According to ancient Greek writings, Hippocrates treated superficial skin cancers with cautery. Four centuries later in Rome, Aulus Cornelius Celsus reported surgical removal of benign and malignant skin tumours. Treatments for skin cancer have developed and progressed ever since.

There are over 10,000 cases of malignant melanoma (MM) diagnosed in the UK each year.² Incidence has quadrupled in the last thirty years, with this trend predicted to increase. There are thought to be over 100,000 new cases of non-melanoma skin cancer (NMSC) diagnosed in the UK each year, although it is hard to determine exact numbers as cases are often not recorded.^{3,4} Suggested reasons for the rise in incidence include the ageing population⁵ (risk of skin cancer increases with age), increased use of sun beds⁶ and more sunbathing abroad.³

Varma suggests that greater pressure on dermatology services due to the rise in new skin lesions may result in shorter consultations, increased waiting times and fewer follow-up appointments, all of which could put patients at risk.⁷ Surgery is the most commonly used treatment for skin cancers,⁴ and so the impact on dermatological surgery is likely to be significant.

Increasing the workload of dermatological surgeons to excessive levels may result in doctors that are stressed, disillusioned and less satisfied in their work. It could also lead to health problems, more time off sick and doctors leaving the profession.

To prevent adverse events the potential impacts of rising incidence of skin cancer on dermatological surgery must be examined, and ways to limit negative outcomes suggested.

Growth of dermatological surgery as a speciality

An obvious way to deal with a rise in the number of patients requiring surgery for skin cancer is to recruit and train more dermatological surgeons. This is particularly important, as in recent years there have been reports of a shortage of consultant dermatologists. In 2002 there were reports up to 20% of positions being left unfilled, after the publication of a report from the Parliamentary Group on Skin.⁸ There seems to be little evidence as to whether this has improved, or of the reasons behind the shortage. If it is due to too few training posts, or the delay between recruiting more dermatologists and an increase in the number of fully trained consultants, then perhaps ways to improve workforce planning should be considered, so this does not occur in the future. If it is due to a lack of suitable applicants for the posts, efforts may

need to be made to improve the image and appeal of the speciality. If it is due to trainees or consultants leaving the profession, reasons for this must be examined and appropriate changes made.

Whilst the allocation of more resources to the training and education of dermatological surgeons would be extremely beneficial, NHS resources are limited and so additional or alternative methods of dealing with increased demands on services must also be considered.

Changing roles of healthcare professionals – extending the role of nurses

Dermatological surgeons are highly skilled and expensive to train. The possibility of training other healthcare professionals to carry out parts of patient management that do not require the specialist skills of a dermatological surgeon may allow a greater number of patients to be treated in a timely fashion whilst keeping costs down and limiting pressure on skin cancer services caused by the rise in incidence of the disease.

The NHS Plan, published in 2000, suggested that minor surgery may come under the remit of an appropriately qualified nurse.⁹ A nurse trained to perform skin biopsies costs less to train and to pay than a doctor with similar skills. However, this does not necessarily mean they are more cost-effective overall. According to Hopkins, Solomon and Abelson, nurses may take longer to do procedures, may require more supervision, or may spend more time 'advising and counselling patients.'¹⁰ However, anyone learning a new procedure will take longer than someone with more

experience, and there is no reason why a nurse should be any slower once adequately trained.

According to Lomas, the European Working Time Directive (EWTD) has been a major pressure for change in nursing roles. With junior doctors now limited to working only 48 hours a week, nurses are stepping in to take over some of the responsibilities previously afforded to them.³ However, there is some concern this reduces junior doctors training opportunities.¹⁰ On the other hand, if some of the less 'exciting' work is carried out by nurses, this may increase the appeal of dermatological surgery to junior doctors and increase the number of applicants for training posts. However, the speciality may not wish for these arguably less committed applicants.

According to Humphris and Masterson, nurses in surgical posts lead to greater continuity of care and team working, ensuring the best and fastest care for the patient.¹¹

An audit done in Queen's Medical Centre in Nottingham, where they have 9 nurses trained to perform skin biopsies, found that 100% of patients were happy to have their biopsy done by a nurse.¹² Most patients there have their biopsy done on the same day as they are seen in clinic. According to a review by Hopkins, Solomon and Abelson patients are content with 'professional substitution' if roles are explained to them.⁹

Nurses, either in hospitals or in the community, may also take on some of the minor surgical procedures that had previously been provided by GPs. A specialist nurse

who is adequately trained and performs skin biopsies regularly is likely to have more up to date and practiced skills than a GP who only does a few biopsies a year. NICE emphasises the importance of specialisation³ and the Calman-Hine report recommends that healthcare professionals must treat enough patients to 'ensure adequate expertise.'¹³

Dermatological surgeons work in multidisciplinary teams (MDTs), allowing the incorporation of a range of viewpoints, which draw on the varying expertise of different team members. This helps ensure that the best treatment plan is created for the individual patient.¹⁴ According to a review by Lanceley et al., MDT working improves the patient experience, leads to better coordination of care, reduces waiting times, and lowers the number of unplanned admissions.¹⁵

It is vital that all team members know their areas of expertise and the limits of their skills, and that they understand the roles of other team members, to prevent unnecessary referrals and for patient safety.

Streamlining of services and greater management of patients in the community

A key part of the current coalition governments plan for the NHS is to make savings by 'streamlining' services. It has also become popular with policy makers in recent years to move services away from secondary and tertiary centres and out in to the community, in an attempt to save money and offer patient choice. According to NICE, many patients with precancerous lesions or low risk BCCs could be safely managed in the community, as long as the patient is satisfied with this, and they do not miss

out on access to services that would be available to them in hospital, such as clinical nurse specialists.³ It is therefore important to consider whether it would be appropriate to increase the availability of dermatological surgery in the community.

One way of allowing more patients to be treated in the community, and increasing the number of patients that can be seen by each dermatological surgeon, is to use teledermatology. Teledermatology can be defined as 'The use of communications technology to facilitate the provision of healthcare for persons with skin disease'.¹⁶ Images of a skin lesion can be taken using, for example, a digital camera or mobile phone, and sent to a specialist, along with important details from the history taken by a healthcare professional in the community, such as a nurse or GP. The specialist can review these and decide whether they need to see the patient in person. If it was proved to be safe, effective and acceptable to patients and healthcare professionals, teledermatology could potentially save a lot of time and money, both of which would help dermatological surgeons and their colleagues to manage the growing number of skin cancer cases. It may also save the patient the time, effort and expense of travelling to visit a specialist. This suggestion could be particularly relevant to the areas such as the South West of England, which has the highest incidence of skin cancer in the UK, and a low population density. In the South West many patients must travel long distances to get to hospital, and so greater provision of services in the community would be particularly beneficial to them.

Godsell suggests the possibility of combining teledermatology with a nurse biopsy service.¹³ Once a specialist has reviewed the patients history and the image of their skin lesion, they could decide that that no treatment was necessary, that the patient

was low risk and could have their lesion removed by a surgical nurse in the community, or that their lesion appeared to be of high risk and that they must be seen by the dermatological surgeon.

There is some controversy around the use of teledermatology, particularly with regard to high risk skin cancers such as MM, where there are more likely to be serious repercussions for the patient if it is missed. The dermatologist is unable to observe non-verbal cues and identify patient concerns as they do not take the history themselves, and they are not able to palpate the lesion, or examine from different angles or at other sites.⁷ There are also confidentiality issues. Greater research is needed in to the safety and security of teledermatology, and the technology required to facilitate it, before a significant increase in its use could be considered.

It is also important that when trying to reduce treatment times and the number of visits to hospital, patients do not feel that their treatment is being rushed. According to NICE, 'A focus group study found that patients have difficulty in absorbing information at the time of diagnosis.'³ When trying to streamline services and reduce time spent in hospital, it is important not to leave the patient with inadequate time to absorb information and ask questions.

Prevention is better than cure

It is important to try to reduce skin cancer incidence to reduce morbidity and mortality. This would also help reduce pressure on dermatological surgery and save money, which could instead be used elsewhere. Exposure to ultraviolet (UV) light in

an important preventable risk factor for most types of skin cancer, and so encouraging people to reduce their exposure is an important aspect of prevention.³ This is a role that can be shared by GPs, dermatological surgeons and public health workers.

UV radiation damages DNA in cells of the epidermis of the skin, and so is believed to be a key risk factor for skin cancer.¹⁷ DNA is damaged by the formation of pyrimidine dimers.¹⁸ This damage is repaired via the nucleotide excision repair pathway. If this pathway becomes overwhelmed by high exposure to UV light and a subsequent high level of DNA damage, skin cancer develops. NMSC is associated with high total UV exposure, such as working outside, whereas melanoma is associated with short periods of high exposure, such as sunbathing or using sun beds.¹⁸ Consequently, according to NICE, men of lower socio-economic groups are most likely to get NMSC, whereas affluent women are more likely to get MM.³ Melanin offers some protection against UV light, and so skin cancer is most prevalent in Caucasians.¹⁷

UV exposure can be limited by using sunscreen, avoiding the midday sun, covering up with long-sleeved clothing and a wide-brimmed hat, and avoiding the use of sun beds.¹⁹

Lack of information about the dangers of UV exposure was a concern of patients with skin cancer in a survey carried out by NICE³, so it is important to consider ways that dermatological surgeons and other healthcare professionals can educate the general public to avoid the risks. Many different methods of encouraging people to limit their UV exposure have been tried, from large advertising campaigns³, to behavioural

counselling focussing on warning patients about the risk of skin cancer and premature ageing of the skin.¹⁹

Dermatological surgeons can play an important role in prevention by giving advice to patients who attend their clinic about a suspicious lesion. Patients diagnosed with skin cancer are at risk of developing subsequent lesions of the same or a different type³, so it is important to educate them about how to protect themselves from UV exposure and how to check themselves for possible skin cancers.

Screening Programmes

There is currently no skin cancer screening programme in England, but screening is done for breast, cervical and bowel cancer.²⁰ The possibility of a skin cancer screening program should be considered to see if it has the potential to reduce morbidity and mortality.

A skin cancer screening program would meet most of the criteria used by the World Health Organisation (WHO), which are shown in Box 1. Skin cancer is an important and fairly well understood health problem, which can be screened for, investigated and treated in a way that is acceptable to patients and healthcare professionals. However, as many skin cancers are slow growing and are visible on the skin, they are often noticed by patients at an early stage anyway, without the need for a screening programme.²¹ A recent systematic review by Wolff, Tai and Mille for the U.S. Preventive Services Task Force found poor evidence for screening via full body examination, by the patient themselves or by a physician, in reducing the morbidity

and mortality of skin cancer.²² However, some countries have chosen to implement screening programs, an example of which is Germany. A pilot screening program was trialled in a region of northern Germany in response to increasing skin cancer incidence nationally.²³ The pilot seemed relatively successful, and far more melanomas were detected than usual in the region. The screening program was commenced nationally in 2008. People aged 35 and over can visit their doctor every 2 years for a full body examination. So far evidence of benefit is weak, and so further evaluation is needed urgently. This screening program is something that should be watched by the UK and outcomes taken in to account when considering whether or not a screening program would be beneficial here.

Box 1 – Criteria for a successful screening test²⁴

1. The condition sought should be an important health problem.
2. There should be an accepted treatment for patients with recognised disease.
3. Facilities for diagnosis and treatment should be available.
4. There should be a recognizable latent or early symptomatic stage.
5. There should be a suitable test or examination.
6. The test should be acceptable to the population.
7. The natural history of the condition, including development from latent to declared disease, should be adequately understood.
8. There should be an agreed policy on whom to treat as patients.
9. The cost of case-finding (including diagnosis and treatment of patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole.
10. Case-finding should be a continuing process and not a “once and for all” project.’

If a screening programme were to be started in England, it would have to be decided who would carry out the screening. This may or may not involve dermatological surgeons. Even if the screening process itself is done by other healthcare professionals or GPs, there is likely to be an increase in the number of referrals to dermatological surgeons. As the screening test used is heavily reliant on the person performing the screening, there may need to be extra training for those performing the screening, to prevent inappropriate referrals for dermatological surgery.

Improved registration of tumours

Accurate registration of skin tumours would provide more information about the true incidence of skin cancer, and allow for better planning of dermatological surgery services. Currently, different areas record different information, and much information is not recorded at all. Recurrent lesions, pre-malignant lesions, multiple primaries, rare cancers and tumours treated by destructive methods without histology are often not recorded.¹⁵

Data on the treatment of skin cancers is no better. Only procedures involving inpatient or day case admissions are recorded nationally, and a large number of skin tumours are treated as outpatients or in the community. Clinical coding is done differently in different hospitals, and so this information is also of little use for compiling data on skin cancers. Standardisation of the recorded information is a key recommendation in NICE's 2006 guidance 'Improving Outcomes for People with Skin Tumours including Melanoma'.³

Maintaining high standards of patient care and satisfaction despite increased pressure on services

Patients with skin cancer are different from many other cancer patients in that their disease is often not life threatening, their treatment is frequently very short in duration, and follow up may be limited, with many patients able to self-examine.³ Whilst this is of course a positive, it can potentially leave patients feeling unsupported. Patients with skin cancer also face the challenge of disfigurement following surgery, particularly as many of these cancers occur on the head and neck.²⁵ Dermatological surgeons play an important role in ensuring that patients feel adequately supported throughout their illness and beyond, and ensure that they are referred for appropriate support if necessary. It is vital that when deciding how the profession will manage the effects of the rising incidence of skin cancer that dermatological surgeons are able to continue to make the time to provide a high standard of patient care.

Conclusion

The rising incidence of skin cancer, combined with a tough economic climate, is likely to lead to an increasing workload for dermatological surgeons. Possible ways of managing this increase range from the obvious idea of increasing the number of trainees, to sharing more of the workload with other members of the multidisciplinary team, greater use of technology, and attempts to slow or reverse the trend via public health interventions such as educating the public and implementing screening

programmes. Whichever of these methods, if any, is used, allowing dermatological surgeons to maintain the high standard of care they provide for their patients is vital.

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