

LEADING ARTICLE

Shaving patients before operation: a dangerous myth?

The origin of the practice of shaving hair from operative sites is not clearly documented. However, Smith's account of surgical practice at Bellevue Hospital in the United States of America dates the practice as being late eighteenth century in origin: 'The patient was often put on the (operating) table unbathed and grimy with dirt, superfluous hair was sometimes shaved off'. (1). The surgeons of the time believed that wounds might heal more quickly if hair could be prevented from becoming entangled in the sutures and wound during closure. The shaving of operative sites was well-established by the beginning of the twentieth century (2), and this ritual has remained until recently.

One of the earliest studies which challenged the concept of preoperative shaving was performed by Seropian and Reynolds (3). Their prospective, randomised study in 1971 showed that wound infection rates (graded according to the American National Research Council) were almost ten times greater when hair was removed preoperatively with a razor than infection rates in patients who had not undergone any preoperative hair removal. The infection rate was 5.6% after razor depilation and 0.6% after no depilation. The study, therefore, indicated that preoperative shaving had a definite adverse effect on wound infection rates.

In some cases hair removal before surgery is essential, for example, in the case of an extremely hirsute patient where the hairs may interfere with the suturing or the stapling of the incision. Several studies have shown that some methods of depilation have a much lower postoperative wound infection rate than the traditional razor shave. A detailed investigation was undertaken by Hamilton *et al.* (4) to compare the efficiency, safety and cost of hair removal with a safety razor, an electric clipper and a depilatory agent (containing 4-5% calcium thioglycolate at a pH of 11.5-12.5). Each method of removing hair was assessed by direct observation, photography and scanning electron microscopy. Direct observation showed that the safety razor often caused gross cuts, and the clippers tended to nip loose skin. The depilatory agent caused no visible injuries. The scanning electron microscope also revealed injuries to the surface of the skin which appeared undamaged to the naked eye. The razor caused multiple slices perpendicular to the line of progress of the blade and the clipper caused wide-

spread nicking. The depilatory agent did not appear to damage the skin surface and, in more than 500 cases studied, caused a sensitivity reaction in only three. Hamilton *et al.*'s results (4) and several other studies (5,6), demonstrated that a depilatory agent was the most efficient and rapid method of hair removal and its expense was found to be offset by the time and labour that it saved.

The timing of preoperative shaving has been shown to have an important effect on postoperative wound infection rates (7). Removal of hair immediately before an operation results in lower infection rates than removal of hair the day before an operation. A possible explanation for this is that bacteria do not have as long to infect the traumatised dermis during a shorter preoperative period. However, in a survey of operating theatre practices for infection control in 433 randomly selected US hospitals, the timing of shaving was found to be dictated by individual prejudices rather than by scientific data (8). Preoperative shaving was performed the night before the operation in 58% of hospitals. Only 14% shaved the hair within 1 h of the operation. The timing of the shaving was usually decided by the hospital policy (64%) rather than by individual surgeons, and in none of the hospitals surveyed was shaving routinely avoided.

There is conclusive data showing that hair should not be removed from the operative site unless it physically interferes with the accurate anatomical approximation of the wound edges and that if depilation must occur, it should occur by a process other than shaving. Although surgeons ought to be aware of these facts, most still seem to prefer to shave their patients up to 24 h before the time of the operation. Is this due to surgeons' ignorance of the data or to traditional surgical 'dogma'? We have conducted a questionnaire-based survey to assess the current practices and opinions of surgeons, ward staff and patients with regard to preoperative depilation at Manchester Royal Infirmary and St Mary's Hospital, Manchester. It was clear from the surgeons' answers to the questionnaire that many were not up to date with the literature about preoperative depilation and its effect on postoperative wound infections. It was surprising that only 15% of the consultant surgeons had a policy *not* to routinely shave preoperatively since they realised it increased the risk of postoperative wound infection. Less

than 30% of the surgeons thought that their patients underwent depilation in the operating theatre and most thought that shaving took place a significant time before operation. Only 26% of the surgeons shaved their patients themselves in theatre. Surprisingly, 24% of the surgeons still believed that preoperative depilation *decreased* the risk of postoperative wound infection.

According to the Ward Sisters, only 18% of the surgeons gave any guidelines on depilation. All of the patients on our surgical wards who underwent depilation were shaved; no depilatory agents were used. As with the surgeons, a large number of the Sisters (27%) still believed that shaving decreased the risk of the patients developing a postoperative wound infection and 36% stated that the only reason depilation took place was because it was traditional.

All of the patients surveyed who were shaved preoperatively had been expecting this to happen, and only 2% of the patients resented being shaved.

It is clear that surgeons and nurses need to be made more aware of the benefits of depilatory agents and the adverse effects of performing a traditional razor shave. It is also important that they appreciate the effect that the timing of the shaving has on postoperative wound infection rates. The standard regimen in the two hospitals surveyed in Manchester is for patients to be shaved 12–24 h preoperatively. A similar regimen is probably employed by many other hospitals throughout Britain. If attitudes are to change, surgeons need to give the nursing staff much clearer guidelines as to whether, when and by what technique they require preoperative depilation to

occur. Maybe then the unnecessary, and potentially harmful, process of routinely shaving patients will stop.

FIONA J MCINTYRE MB ChB
House Officer

RORY MCCLOY MD FRCS
Senior Lecturer in Surgery/Consultant Surgeon
University Department of Surgery
Manchester Royal Infirmary

References

- 1 Smith S. Quoted by Wangenstein OH. *The Rise of Surgery from Empiric Craft to Scientific Discipline*. University of Minnesota Press, 1978: 353.
- 2 Esmarch F, Kowalzig E. *Surgical Technique: A Textbook on Operative Surgery*. New York: MacMillan Co, 1901: 13–15.
- 3 Seropian B, Reynolds BM. Wound infections after pre-operative depilatory versus razor depilation. *Am J Surg* 1971; 121: 251–4.
- 4 Hamilton HW, Hamilton KR, Lone FJ. Pre-operative hair removal. *Can J Surg* 1977; 20: 269–75.
- 5 Koos P, McLomas B. Shaving, versus skin depilatory cream for pre-operative skin preparation. *Am J Surg* 1983; 145: 377–8.
- 6 Jaffray B, King PM *et al*. Bacterial colonisation of the skin after chemical depilation. *J R Coll Surg Edinb* 1990; 35: 243–4.
- 7 Court-Brown CM. Pre-operative skin depilation and its effect on post-operative wound infections. *J R Coll Surg Edinb* 1981; 26: 238–41.
- 8 Garner JS, Emori TG, Haley RW. Operating room practices for infection control in US hospitals. *Surg Gynecol Obstet* 1982; 155: 873–80.