Aspects of Plastic Surgery

Tattoos

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The type of problem confronting the practitioner with regard to tattoos can be illustrated by the following cases: A 17-year-old girl had "fallen into bad company," as her father put it, and with her companions had had her arms professionally tattooed. She changed her friends and a year later returned to the tattooist, asking for the decorations to be removed. At first the tattooist was not very helpful but was eventually persuaded to attempt treatment and did this by introducing some acid into the tattoo with his machine. This resulted in a burn and scarring, while only part of one of the tattoos was removed (fig. 1). When the process was repeated on another part of the tattoo the arm became infected and she developed cellulitis. Antibiotics controlled the infection and the girl was referred to a plastic surgeon for his opinion. In this case, it would probably be possible to excise the tattooed skin and obtain a direct closure of the defect, leaving a permanent linear scar.

The next case was a 35-year-old salesman, who had been tattooed on both his hands and forearms by a professional tattooist while serving abroad (fig. 2). He was about to be promoted in a large firm and felt that the tattoos handicapped him. He had been advised to have the excised skin replaced with a graft by a plastic surgeon.

The third case was a girl of 24 who attended with a recommendation from her psychiatrist that removal of the self-inflicted tattoos would help her treatment. The tattoos were scattered over a wide area of the left arm (fig. 3) and, if a plastic surgeon agreed to treat her, the excised skin would have to be replaced with a skin graft.

Acquisition of Tattoos

Tattoos are usually acquired in early adult life and result from the desire to conform with a peer group. Alcohol is sometimes used as a disinhibitor. Later the tattoo is found to be an embarrassment, because of social stigma or, for example, if it contains the name of a previous girlfriend. Tattooing is more prevalent in personality disorders. The psychopath participates in the painful self-mutilating rite so as to be accepted by the group. Also he is less able to judge whether he will want such a mark later. The libido of a psychopath is directed more into aggression than into sexuality and the tattoo is a phallic symbol used to disguise the inferiority he feels.¹ Occasionally tattoos are the result of an assault.

Tattooing has long been associated with the army and the navy and it was in 1869 that tattooing to distinguish "Deserters" or "Bad Characters" was discontinued in the services.² Scutt states that the decorative use of tattoos by sailors dates back to Captain Cook.³

Method of Tattooing

Tattoos are produced by implanting particles of colour pigment into the dermis with a needle. The professional tattooist uses multiple needles arranged in a line or bunch. The needles are moved up and down by an electric motor or, more crudely, by a bell solenoid (fig. 4). The needle point perforates the skin leaving the pigment in the dermis (fig. 5). The professional tattooist aims to place his pigment at a precise depth, whereas the amateur tattooist (with a single hand-held needle) scatters his pigment over a varying depth, this makes removal more difficult. The pigments commonly used are carbon for black; cinnabar (mercurial salts) or cadmium salts for red; chrome salts for greens and yellows; cobalt for blue; ferric salts for browns, pinks, and yellows; and titanium oxide for white. The designs of tattoos were categorized by Bell into artistic (pretty pictures); sentimental (scroll with a name); macabre (a head transfixed with a dagger); Rabelaisian and obscene.

Hazards of Tattooing

The medical hazards of tattooing were described by Scutt in 1972.³ Cross-infection is the commonest hazard and a fatal case of hepatitis has been described recently.⁴ Pyogenic infections occasionally occur but the transmission of syphilis and tuberculosis are things of the past. Reactions to the pigments are not uncommon and red pigments are particularly troublesome. Tattoos containing mercury may react when the body is exposed to the metal on a second occasion—for example with a dental filling; cadmium-containing tattoos occasionally react on exposure to sunlight. Keloids may also form in tattoos and other skin conditions may be localized to the site.²

Treatment of Tattoos

In many cases the patient successfully hides his tattoos—for example, by wearing clothing or plasters over the affected part. Indeed, one lady, who had been married for 30 years, said that her husband never knew that she had a tattoo on her upper arm, as it had always been covered by a plaster. A person who wants a tattoo removed usually goes to a tattooist, whose primary method is to overprint the original tattoos with another one; he would be reluctant to burn off the tattoo with acid. The more reputable tattooist will recommend medical treatment.

FIG. 1—Burn and scarring as a result of attempting to remove a tattoo with acid.
 FIG. 2—Tattoos performed by professional tattooist on a serviceman.
 FIG. 3—Self-inflicted tattoos.
 FIG. 4—Needle and bell solenoid used by professional tattooist.

Surgical Treatment

Small tattoos or those which are situated where the skin is easily stretched can be excised and closed bearing in mind that a full thickness of skin must be removed as pigment has penetrated the whole dermis. After excision of a large tattoo or one where the skin is inextensible, such as on the dorsum of the finger, a split skin graft is normally needed. An alternative method is to shave the skin until all the pigment has been removed leaving the last layers of the dermis as a bed for the skin graft. Some operators use dermabrasion, which may have to be repeated to obtain the desired effect. Skin grafting is then unnecessary. Experimental work using the laser beam to remove tattoos is under consideration. The end result should be a patch and not a scar in the shape of the tattoo, so that when excising care must be taken to avoid sticking too close to the border. It is sometimes possible to deal with a large tattoo by serial excision, removing only part of the tattoo at the first operation and removing the rest after a delay of three to six months. This avoids the use of a graft but leaves a wide scar.

Most cases can be dealt with in the outpatient department under a local anaesthetic thus conserving hospital beds for more urgent cases. Small areas for skin grafting can be dealt with under a local anaesthetic. Ethyl chloride spray may be used to anaesthetize the skin graft donor area. After excision and closure a bulky dressing is applied to limit movement. It is not advisable to operate on both hands on the same occasion because of difficulty in managing toilet and feeding with bulky dressings. The sutures are removed after about five to seven days but are left longer on the hands and fingers. A manual worker who has had tattoos removed from his arms or hands will need to be off work for about three weeks.

Scarring

Permanent scars will, of course, result and this should be explained very carefully before treatment starts; it is surprising how many people expect plastic surgery or skin grafting to produce an invisible repair. Scars are often red and raised for three months or so and then gradually fade to their final appearance after about a year to 18 months. If a direct

FIG. 5—Cross-section showing needle point perforating the skin leaving the pigment in the dermis.

closure has been obtained a pale flat linear scar should result and where a graft has been used a flat hairless skin-coloured patch remains. It is debatable whether or not the removal of tattoos should be carried out under the National Health Service. In some cases there is a clear medical indication, such as pigment hypersensitivity, or when it is advisable as part of psychiatric treatment. Where there is no such medical indication the treatment should be outside the N.H.S.

Medical Use of Tattooing

Tattooing can be a useful tool in surgery. Several medical grade tattooing machines are available and the method is the same as that used by the professional tattooist but naturally more care is taken about asepsis. Flesh coloured pigments can be used to try to diminish the colouration of a birthmark, such as a portwine stain, but treatment is tedious and the results are by no means perfect. In breast reconstructions a facsimile of the areola and nipple can be tattooed in place, and in reconstruction surgery of the lips the vermillion can be simulated. The tone of pigmented scars can sometimes be lowered by tattooing and the ophthalmic surgeons used to simulate an iris on a scarred eye, but this is no longer necessary.

Accidental Tattooing

Grazes and cuts due to falls on roads, gravel, or coal may heal with the retention of particles or dirt in the scar and the dermis, resulting in unsightly tattooing. This can be prevented if the wound is adequately cleaned initially, and it may be necessary to scrub the wound with a scrubbing brush under a general anaesthetic. Once a tattooed wound has healed improvement can only be achieved by excising the scar or by dermabrading the more superficial pigment.

The photographs were produced by Mr. R. A. Dewsbery, of Lister Hospital, Stevenage, and Mr. R. Blake, of Mount Vernon Hospital, Northwood.

References

- ¹ Morrish, L., Personal Communication, 1974.
- ² Bell, R. C., *British Journal of Plastic Surgery*, 1962, 15, 255.
- ³ Scutt, R. W. B., *British Journal of Hospital Medicine*, 1972, 8, 195.
- ⁴ Hopkins, G. B., et al. *British Medical Journal*, 1973, 3, 210.

Conversations on the Social Services

A Social Worker Speaks

FROM A SPECIAL CORRESPONDENT

Mary S is a social worker in Greater London.

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"I run an area team which consists of something like 45 people. This includes both senior and basic grade social workers, clerical and administrative staff, the home help organizer, and one community worker and an organizer of voluntary help. Thus we are available in the area where a population of 35,000 people live. The area which I serve has a fairly stable population with mainly families, not a vast number of immigrants but a mixture of English, Irish, longstanding Greek, and coloured people.

"Within that area I have four teams of social workers to cope with everything; one team does the intake work and three the long-term cases. The intake team are the diagnostic workers who do the initial assessment, a very careful one, and if it seems likely that the case will last longer than three months it is immediately transferred to another team. If, on the other hand, it is a crisis situation that can be dealt with rapidly, they see the client through the trouble themselves. I was looking at our figures today, and in the last year a third of our cases ended in a very short time, and the rest continued. We have a case load of about 1,000, and had closed a further 500.

Generic or Specialist Work?

"Are we doing generic work? Yes and no, I think all have at some time, but now we are going back more and more to a certain amount of specialization, and I think that is fairly general. Generic training is a good idea, it lets people know their possibilities. And, of course, specialty work is different from what it used to be in some cases; for instance, intake work is one of the major specialties of the new department. I would find it hard to say what proportion of our work comes through doctors. Most of our clients have problems to do with money, with family dynamics, housing, delinquency—we have a lot of court work, because, though the probation officers are not with us, since the 1969 Act we have had the care of everyone up to the age of 16.

"A lot of our problems concerned with children at risk and old people involve doctors. Written referrals from doctors are rare, most are by telephone and everything is urgent. One can't always make an immediate assessment on, for instance, whether a child is being battered. A doctor may say 'Move this child immediately,' not realizing that we haven't the power to do this without pretty sound evidence. Often we are worried about a case, and we say to our legal department 'Have we got a case?' and they say 'No.' We have endless anguish over our decisions. We all know what life in care does for a child, it deprives him of a normal family life. Even in the best of homes there is going to be a change of housemother quite often; people don't stay in a job 20 years—only mothers do that.

Relations With Doctors

"I must admit that relations with doctors are not good. It's difficult to think of ways to improve them. When we started we gave an inaugural party, and one general practitioner came and one other replied. The other day we called a meeting because we were re-organizing our mental health services on an area instead of a borough basis by day, and we thought they would like to discuss it, but we only got five out of 35 to attend. That sort of thing is very discouraging. And if something goes wrong they tend not to contact me, whom they know, but the director of social services. The director of social services has the most enormous job, employs something like 3,000 people, and has very heavy responsibilities in a variety of fields, including politics, social work, finance, and administration.

"My worst problems with doctors arise because they don't understand our statutory duties; they either think we can do anything or nothing. This can only be improved by knowledge, and they don't really have to read the medical press, just the national papers, like the rest of us. I was once asked to speak to a group of trainee general practitioners and I mentioned the Chronically Sick and Disabled Persons Act, and, though it was nearly 18 months since the Act had become law, none of the 30 to 40 trainees in the room had heard of it.