Ambulatory Surgery 1993; **1**: 15–17

Review

Surgery of the hand — a genuine specialty for ambulatory surgery

E Brug, W Klein, J Overbeck

Trauma- and Handsurgery Department, University of Munster, Germany

The existing organization of funding and resource provision in Germany does not allow for implementation of outpatient surgery policies on a large or even very moderate scale. Nevertheless, for a wide range of procedures in hand surgery, this form of treatment offers the best option on a medical basis. Ambulatory surgery would also be the most economic option if reimbursement schemes were rationalized. The key issues for correct provision of ambulatory hand surgery care are the use of appropriately qualified personnel, correct choice of anaesthetic techniques, allocation of adequate resources and quality of care.

Key words: Hand surgery, outpatient surgery, ambulatory surgery

There has been considerable discussion about ambulatory surgery in Germany in recent years[1–3]. However, a suitable environment for growth of ambulatory surgery requires fundamental changes in hospital structure and funding, and these have yet to occur. Here, we discuss the suitability of hand surgery procedures in the ambulatory setting and outline the problems of instituting such changes in the prevailing health care environment in Germany.

Financing Ambulatory Surgery

German university hospitals do not normally participate in ambulatory surgery. They are allowed to perform surgical procedures on an outpatient basis only for training purposes. For this treatment, they receive about 80 Dm per patient per 3 months, irrespective of treatment and technique. This represents the remuneration that the university unit receives from the healthcare schemes, and the difference between this and the actual cost is paid by the State, which is responsible for the funding and training of medical university staff. So for economic reasons it is unprofitable to perform even minor ambulatory surgery in these institutions.

The non-university hospitals have other restrictions. Ambulatory surgery is carried out by surgeons in practice, who are not linked to a hospital and therefore have no allocation of hospital beds. In certain areas, where there is no such surgeon available, the hospital can obtain permission to take responsibility for the ambulatory procedures. It is quite natural that many surgeons in a hospital admit a patient for the shortest possible time, normally one day and night. The hospital management then charge the health care schemes single-day rates: about 250/500 Dm. This is very often insufficient to cover the cost even for a small operation in hand surgery. If it is not possible to hospitalize the patient for at least 1 day, the surgeon provides a bed for a few hours postoperatively without charge (quite similar to outpatient surgery). In cases like this, the owner of the hospital (city, church or State) must pay for most of the cost of surgery.

The consequence is this: in order to maintain and promote the present system with operations carried out by doctors in their own practice, the qualified hospital doctor is excluded from ambulatory surgery.

Surgery of the hand — is it minor surgery?

From the patient's point of view, whose demands concerning medical treatment have risen in proportion to the progress in medicine and the cost explosion in health care, the main concern is that he is treated by a surgeon whose qualification is comparable to that of a specialist surgeon in the hospital. Nevertheless, hand surgery is ideally suited to ambulatory surgery. There is a danger that the practice surgeon, who has never received formal training in hand surgery, performs many hand operations in the belief that ambulatory surgery is so-called 'minor surgery', which is performed easily without special education. More than 100 years ago, Hüter warned that

Accepted: January 1993
Correspondence and reprint requests to: Prof Dr E Brug, Department of Trauma- and Handsurgery, University of Münster, 4400 Münster, Germany

0966-6532/93/010015-3

there is no such thing as minor surgery, but only 'minor surgeons'.

The possibility for a patient to find a well-trained handsurgeon in a practice is very small, considering that less than 50 hand surgeons are practising ambulatory surgery in Germany at present.

Requirements for ambulatory hand surgery

Ambulatory hand surgery requires the same quality, experience and education as does hospital hand surgery. We believe that there should be at least a 2-year training period in a department of hand surgery before a surgeon is allowed to operate in this specialty. It is absolutely necessary for the surgeon to have access to a complete instrumentation set, including a microscope, or at least a magnifying glass, and a special operating table, as well as a pneumatic collar, with a manometer in order to apply a tourniquet and operate in exsanguination. According to one of the 'fathers of hand surgery', Stirling Bunnel, operating in the hand without a tourniquet is similar to repairing a watch in an inkpot[4].

Ambulatory anaesthesia

Two facts are chiefly responsible for the suitability of handsurgery to be performed on an outpatient basis: first, the hand is located in the periphery of the upper limb, and, second, it is possible to use regional anaesthesia. Every procedure can be carried out in plexus-block or Bier's-block. All hand surgeons should therefore have the ability to perform this type of anaesthesia in order to work without an anaesthesiologist. Normally, the education of the general surgeon does not include training in regional blockade.

In giving anaesthesia to a patient, a hand surgeon must be able to manage possible complications and to switch to general anaesthesia should regional anaesthesia fail. The surgeon therefore needs an anaesthesiologist to be available if he has no training in managing all cases of cardiopulmonary failure and other complications. 'Escaping' to local infiltration anaesthesia may be a comfortable option, but in handsurgery this is inappropriate and dangerous, because it may lead to small and uncertain exposures and renders operation in exsanguination impossible. In the case reports below we indicate why local infiltration anaesthesia should be avoided in handsurgery.

Case reports

Dupuytren's contracture (grade 1)
In this case there was no indication to operate in our opinion, but our aim here is to discuss the method used in this procedure. A small node was removed in very painful palmar infiltration anaesthesia, of course without a tourniquet. The consequence of the small exposure was a lesion to the palmar digital branches of the median nerve on both sides, with corresponding neurological deficit.

Carpal tunnel syndrome
Symptoms and neurological findings in a patient indicated an operation but not in infiltration anaesthesia. An additional fault was operation at the wrong location: from an approach 3 cm long proximal to the wrist fold, the median nerve was exposed proximal to the carpal tunnel where the origin of the compression was located. Outcome: the dysaesthesia remained, additional causalgia in the area of the scar and pain of a neuroma because of an injury to the pulmar branch.

Panaritium
With the words 'it's done in a moment' a cook's panaritium was incised *en passant* without any anaesthesia! Retraction of the finger due to pain not only led to a bigger incision over the whole finger-tip, which is now dystrophic and asensible, but resulted in a Sudeck's disease and shoulder-arm syndrome. Outcome: nearly completely ruined function of the arm.

These case reports are extremely negative examples, but if a management policy is advocated, the possible disadvantages and pitfalls have to be stated clearly. These are not the only cases we have seen in recent years. A long list of reoperations due to underestimation of the initial procedure could be added, as well as many cases with medico-legal implications.

Future goals for ambulatory surgery

A new policy in the field of ambulatory surgery must be introduced, but this cannot be achieved in the present German system, which allows untrained surgeons to perform 'little and easy operations'. A high medical standard must be attained, but this cannot be achieved without creating new costs.

For ambulatory surgery to operate correctly, it is essential that specialists are provided with the appropriate equipment and facilities. In addition, the skills of the specialist must be recognized: just because it is possible to perform a procedure on an outpatient basis, it does not necessarily mean that any surgeon is qualified to do so.

Outpatient hand surgery procedures

Provided that equipment and expertise are adequate, numerous operations can be included in an ambulatory operation service, including the following:

simple wounds (cuts, lacerations, crush injuries);
fresh injuries with foreign bodies;
injuries of the finger tips;
amputations following trauma, if repair is not possible or desired by the patient;
extensor tendon injuries;
small skin defects;
multiple small lacerations;
fresh closed fractures (excluding Bennet's fracture);
ligamentous injuries and joint dislocations.

The list of elective operations is even more extensive and includes the following indications:

nearly all benign tumours of the hand, such as ganglioma, fibroma, and xanthoma;
disorders of the tendons, such as trigger finger, or Quervain's disease;
tendonoses, such as tennis or golf elbow;
carpal tunnel syndrome;
button hole deformity;
Dupuytren's disease (second degree or limited to the fifth finger);
Swan neck deformity;
drop finger.

Many panaritia can be included, especially those located around the nail and the subcutaneous cases of middle and end phalanx. More proximately-located infections, and, above all, deep infections, must be observed and treated in the hospital.

All of these procedures must be carried out only with extensive knowledge of topographical and functional anatomy, with an intensive training in the specific operations of hand surgery and with appropriate equipment.

Summary

Hand surgery is most appropriate for ambulatory surgery for the following reasons:

1. There are relatively few diseases and disorders with general symptoms.
2. Anaesthesia is necessary only in the form of regional blocks of the upper extremity and general anaesthesia is seldom required.
3. Patients are able to leave the ambulatory unit shortly after surgery.
4. A wide range of procedures can be performed on this basis including injuries and post-traumatic disorders, many elective procedures and management of most hand and finger infections.
5. The number of hand units in Germany is still inadequate to meet the requirements of an industrialized nation, and the number of qualified hand surgeons with an ambulatory service is even smaller. Therefore ambulatory surgery of the hand must, at least in the short term, be covered by the hand units. For these departments, a system must be found that allows an economic service with maintenance of a high standard.

References

1 Brug E, Fritz K. *Ambulantes Operieren in der Chirurgia.* Köln: Deutscher Ärzteverlag 1985
2 Brug E. *Ambulantes Operieren—Allgemeine und spezielle Gesichtspunkte—Schriftenreihe des Landesverbandes der gewerblichen Berufsgenossenschaften* (Zusammenfassung der Referate der Unfallmedizinischen Tagung in Düsseldorf im März 1987) 1987
3 Kassity KJ, McKittick JE, Preston FW. *Manual of Ambulatory Surgery.* Heidelberg: Springer Verlag 1982
4 Bunnel S. *Surgery of the Hand* Philadelphia: JB Lipincott, 1944: 81–91