Gauntlets and Glovettes for Digital Surgery

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Abstract The importance of keeping pathogenic bacteria from traumatic hand injuries is obvious but removing dirt, grease, oil, solvents and other chemicals from injured hands is not always possible. In certain occupations such as construction, workers are exposed to these hazards and when injured injuries (e.g. abrasions, burns, cuts, lacerations, punctures) often present with dirty hands. The technique of using gauntlets and glovettes for digital surgery is presented. This cost effective and pragmatic technique reduces contamination of the surgical field and protects patients from neurovascular damage due to excessive tissue pressure and prolonged application time of forgotten tourniquets.

Keywords Finger injuries · Hand hygiene · Hand injuries · Surgical procedures, operative · Tourniquets

Background

Annually in Europe, over 1.522 million hand injuries occur that result in more than 3 days' lost working time. The importance of keeping pathogenic bacteria from these hand injuries is obvious [1, 2]. It is a mandatory part of good

quality surgical care to remove contaminants such as dirt, grease, oil, solvents and other chemicals from injured hands [1, 2]. In certain occupations such as construction, workers are exposed to these hazards and when injured injuries (e.g. abrasions, burns, cuts, lacerations, punctures) often present with dirty hands. An easy and practical way to minimize contamination from dirty hands during finger surgery is the use of a green sterile surgical underglove to isolate the surgical site [3]. From these gloves may be derived either gauntlets (gloves with one large opening rather than individual openings for each finger) (Fig. 1) or glovettes (gloves except that the finger columns are half-length and open, allowing the top-half of the wearer's fingers to be shown).

Technique

After standard cleaning and preparation of the injured extremity for surgery, a sterile glove can be placed over the injured unclean hand. Then, the distal end of the finger column(s) of the glove to be operated on can be cut with scissors (Fig. 2) and the glove rolled down the finger to act as a tourniquet (Fig. 3). Should there be any concerns regarding very high tourniquet pressures, the rolled back finger column may be incised to create an incomplete ring (Fig. 4) and resecured with a haemostatic clamp (Fig. 5). In addition to avoiding vascular compromise and tissue necrosis, the glovette isolates the injured finger(s) from the rest of the hand and provides protection from any remaining dirt on the hand.

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Fig. 1 Gauntlet—a glove with one large opening rather than individual openings for each finger

Fig. 4 Glovette—the rolled down finger column has been incised to create an incomplete ring

Fig. 2 Glovette—a glove with incomplete finger columns

Fig. 3 Glovette—the incomplete finger column is rolled up to the base of the web spaces

Fig. 5 Glovette—the incomplete ring has been resecured with a haemostatic clamp to create a tourniquet

Discussion

The gauntlet/glovette advantages found are as follows:

- It is easy to apply and remove.
- It allows easy observation of the finger(s) and hand
- It is cheap.

The author has not observed any adverse effects after many years of using the gauntlet/glovette on patients who have undergone hand surgery for traumatic injuries. The rolled-back finger tourniquet remains united with the green surgical underglove and reduces the risk of leaving the tourniquet in situ post surgery and avoids iatrogenic digital ischaemic injuries. This cost effective and pragmatic technique of a green surgical gauntlet or glovette reduces contamination of the surgical field and protects patients from neurovascular damage due to excessive tissue pressure and prolonged application time of forgotten tourniquets [4–6].

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