

A new tourniquet for nail unit surgery

Um novo torniquete para cirurgia do aparelho ungueal

ABSTRACT

Nail unit surgery requires that the surgical field be free of bleeding to allow good visibility of the structures and lesions involved. There are several types of tourniquets aimed at meeting this requirement, each with its advantages and disadvantages. We present a new and simple buckle tourniquet that is adjustable, safe, and cost-effective.

Keywords: tourniquets; surgery; nails; fingers.

RESUMO

As cirurgias do aparelho ungueal necessitam de campo cirúrgico sem sangramentos para adequada visualização das estruturas e lesões. Existem diversos tipos de torniquetes com esse objetivo, cada um com suas vantagens e desvantagens. Apresenta-se um novo garrote simples, ajustável, seguro e barato.

Palavras-chave: torniquetes; cirurgia; unhas; dedos.

INTRODUCTION

The nail unit is highly vascularized by the vascular arcades formed by the branching off of the palmar digital arteries. Temporary interruption of the digital blood flow is of paramount importance in order to correctly view the surgical field, which in turn facilitates performing the procedure and reduces the operative time. This can be accomplished by compressing the arteries in the lateral region of the digit with the aid of an assistant during short procedures or, alternatively, by using a tourniquet. We present a new type of buckle tourniquet that is simple, adjustable, safe, and cost-effective.

MATERIALS AND METHODS

We have used a buckle tourniquet, usually employed for collecting blood from children. It consists of a wide elastic band and a plastic buckle that allows restraining the band at the desired tension and a quick release of the tourniquet when needed. The set can be sterilized and wrapped multiple times without loss of functionality (Figure 1). Following preparation of the surgical field with antisepsis and anesthesia, the tourniquet is fastened around the base of the digit (Figure 2). The elastic band is then pulled until the desired tension is achieved, with the tourniquet being locked in that position. If necessary, the buckle can be completely or partially released during the procedure.

Surgical pearl

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Figure 1: Sterilized buckle tourniquet



Figure 2: Buckle tourniquet fastened around the base of the big toe

DISCUSSION

Adequate hemostasis is essential for performing surgery on the nail unit, not only because it allows the satisfactory viewing of the surgical field, but also because it facilitates the procedure, thus shortening surgical time. Additionally, when treating ingrown nails using chemical cauterization, the surgical field must be kept dry, as the 88% phenol solution used in chemical cauterization can be inactivated by blood, resulting in an incomplete cauterization of the nail matrix, and leading to an increase in the recidivation rate.

Different types of tourniquets are described in the specialized literature, each with its advantages and disadvantages. The most common types are: the pneumatic tourniquet; the Penrose drain used as a tourniquet and fastened using forceps; and the fingers of latex gloves wrapped around the digit, with or without the combined use of forceps¹ or nylon cuffs.² The complications resulting from the use of tourniquets – neuritis, ischemia, and necrosis – are caused by excess pressure on the nerves, prolonged time of use, or when the physician forgets the tourniquet in place. The pressure exerted by the tourniquet

should be just enough to interrupt blood flow, up to a maximum desired pressure value of 300 mmHg,³ which reduces the likelihood of compression lesions, although this correlation has not yet been clearly established. Cut and wrapped glove fingers can be easily forgotten. Penrose drains fastened using forceps may result in very high pressure, leading to an increased risk of neural lesions. Pneumatic tourniquets are not very practical and are expensive.

Our buckle tourniquet offers a number of advantages when compared to other types: it is practical – its application is quick and easy, eliminating the need for additional equipment such as forceps or cuffs; it is adjustable – the exerted pressure can be easily controlled during the procedure; it is safe – due to its dimensions and colors, the risk of forgetting it in place is negligible; and it is cost-effective – it can be sterilized and used repeatedly. Because it brings several advantages and is effective in providing a clean surgical field, we believe that the child model buckle tourniquet is an excellent alternative to the other methods described in this article. ●

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