

Elastic Band, Friend or Foe? A Case of Digital Amputation Following Accidental Elastic Band Application and a Review of the Literature

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Abstract

We present a case of a necrotic finger caused by misguided self-application of an elastic band. The influence of elastic bands in medicine is then discussed.

Introduction

Elastic bands are found throughout modern life for a wide variety of functions. They also have been used therapeutically in medicine in a number of contexts though perhaps notably for deliberate constriction of blood flow during banding of haemorrhoids and oesophageal varices. We present a case of a patient's deliberate self-application of elastic band to a finger with tragic consequences.

Case Report

A 68 year old lady, hard of hearing, but with no other past medical history, presented to the emergency department five days after applying an elastic band around the her left index finger. She had accidentally cut her distal left index finger with a knife and applied the elastic band to prevent bleeding after she reported being unable to make a GP appointment. She lived alone and independent for activities of daily living.

The tip of her left index finger was obviously necrotic with a line of demarcation at the level of the DIPJ. Her finger proximal to this dry necrosis was swollen and erythematous. She was complaining of significant pain and was admitted for intravenous antibiotics and analgesia. Under local anaesthetic the necrotic tip was excised with a small amount of purulent discharge evident at the junction with the viable proximal portion (Figure 1 and 2) She received two days of intravenous antibiotics before being discharged home with dressing clinic follow up.



Figure 1: Necrotic left index finger tip post amputation, Patient consent obtained.



Figure 2: Swollen erythematous left index finger proximal stump, Patient consent Obtained.

Discussion

Elastic bands and their constricting effects have been used to therapeutic advantage in gastrointestinal medicine. Elastic band ligation of haemorrhoids was developed by Barron in 1963 [1] and is now a well-established treatment methodology. Banding of oesophageal varices in both emergency and elective contexts are also an important intervention [2]. Elastic bands have even been utilised as an alternative to umbilical cord clamping [3]. Away from haemostasis, elastic bands have been employed to facilitated musculoskeletal rehabilitation and physiotherapy acting as resistance against which the patient can exercise [4]. Elastic bands are commonly used in orthodontics for correction of tooth alignment [5]. There have also been innovative uses reported including low cost effective techniques for keeping plaster casts dry in combination with a plastic bag [6].

Harmful effects, due to constriction, pressure necrosis and ischaemia have been described affecting many parts of the body. Dental destruction has been described with displaced bands [5]. Accidental circumferential injuries of the arm, leg, finger, neck and tongue have all been described [7,8]. Of note are reports of occasional significant delay in presentation. Such cases have been due to a child applying an elastic band unobserved in a hard to visualise location, such as beneath a plaster cast [9], or an elderly patient not realising an elastic band was still present after utilising one for applying a lower limb dressing [7]. The presence of foreign body injury should be amongst the differential diagnosis in such presentations.

Iatrogenic ischaemic injury, following medical practitioners neglecting to remove elastic digital tourniquet, applied when treating a finger, has been described. Medicinal leeches have been employed in such circumstances to aid in treating venous congestion, although sadly the gangrenous distal finger in this report was beyond salvage [10].

This case demonstrates the significant impact that a constricting article, such as the elastic band, can have on a Patient. This should serve as a helpful reminder of the importance of removing any such articles in the context of injury and particularly when applying a device such as a finger tourniquet.

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