CASE REPORT

Limb tourniquet syndrome - A cautionary tale

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Introduction

Tourniquet syndromes were first recognised in 1612 by Guillemau. The tourniquet syndrome describes severe strangulations of tissues by hair, cotton or similar materials and are surgical emergencies. Tourniquet syndromes can be congenital or acquired. Congenital constriction bands secondary to amniotic bands are well known in the medical literature. Acquired constriction bands over fingers, toes and genitalia are well documented.

A case of "acquired constriction ring" or "limb tourniquet" syndrome is presented to increase awareness of the condition in the geriatric population with memory problems and self-neglect. We have tried to highlight the regional—skin, musculoskeletal, vascular and neurological changes that can lead to irreversible damage to the areas involved.

Case report

An 80-year-old male patient with dementia presented with discoloured, swollen, painful distal third of the left leg. On general examination, he had features of self-neglect. Local examination of the left lower leg revealed a suspicious looking circumferential area at the junction of middle and distal thirds of the leg. The distal leg had skin changes with dusky appearance, was offensive smelling, swollen, had signs of chronic arterial ischaemia, lymphoedema and chronic venous hypertension (Fig. 1a and 1b). The distal leg and foot was tender to touch; the dorsalis pedis pulse was palpable but weak and dorsiflexion was restricted and there was some paraesthesia. Cleaning the area showed granulation tissue and epithelialised skin.

X-rays showed massive periosteal reaction (Fig. 2a and 2b), secondary to venous congestion and chronic arterial ischaemia.

The patient was taken to theatre and the area explored to find, to our surprise, two rubber bands that were embedded deep in the soft tissues underlying the circumferential area with overlying granulation and epithelialisation. The rubber bands were removed, and the wounds debrided and washed out. Wound swabs were sent for culture and sensitivity and the patient was prescribed co-amoxiclav. He stayed in hospital for 2 weeks before discharge.

On further enquiry it emerged that the patient used rubber bands to hold up his socks in winter. Due to dementia and self-neglect they were left for such a long period that they became embedded in the tissues causing a limb tourniquet syndrome.

Discussion

Congenital constriction bands are well known in the medical literature. Acquired tourniquet syndromes are established and have been recorded over fingers, toes and genitals. They are called by various names, i.e. hair tourniquet syndrome, hair thread tourniquet syndrome, tourniquet syndrome, toe tourniquet syndrome, acquired constriction ring syndrome, etc.
The peak incidence occurs in neonates, infants and young children. However they are also seen in adolescents. The aetiology has been attributed to various causes, i.e. socio-cultural practices, non-accidental injuries, maternal telogen effluvium, Munchausen’s syndrome learning disabilities and rarely psychiatric disorders.

In the older age group it is usually associated with cognitive impairment and nursing homes. Non-accidental injury may be the cause in all the age groups, and may be seen in care homes if there is elderly neglect on the part of the carers. Most cases present to the primary care provider or emergency department.

To our knowledge, our case is the first “limb tourniquet syndrome” reported. The peculiarity of the above case is the abnormal periosteal reaction along with dermatological, vascular, soft tissue and neurological changes.

The granulation and the epithelialisation overhanging the tourniquets confused the examining doctors. It is important to have a high clinical suspicion in vulnerable populations, i.e. patients with dementia/psychiatric illnesses/self-neglect and elderly.

Strangulation of limbs, the “limb-tourniquet” syndrome needs prompt intervention as failure to recognise the condition can lead to ischaemia and loss of the limb. Its prevalence and incidence is probably under-reported. Those who deal with elderly and vulnerable groups of patients should be aware of the condition.

Limb involvement may cause loss of function as well as amputation. Rubber bands become a tourniquet due to their tension, wrapped around the tissue. Once the tissue becomes engorged and painful, the offending rubber band can be difficult to see. Prompt removal of the offending rubber bands is necessary to prevent loss of function and amputation.

Limb tourniquet syndrome is unusual and the consequences can be severe. Prompt diagnosis by emergency department physicians, community healthcare workers, general practitioners and other professionals providing health care to elderly is necessary to prevent loss of function and amputation.

Conclusion

To our knowledge there are no previous reports highlighting rubber bands causing limb tourniquet syndrome. The unusual circumstances, vulnerable patient group and abnormal periosteal reaction make this a unique case. This is the first case that the authors are aware of in the literature of abnormal periosteal reaction and skeletal involvement in limb tourniquet syndrome. The granulation and the epithelialisation over the tourniquet confused the examining doctors. It is important to have a high clinical suspicion especially in a vulnerable population (i.e. patients with dementia/psychiatric illnesses/self-neglect or elderly), and intervene early to prevent irreversible damage to the limb preventing amputation.

References


