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CASE STUDY - Delayed Repair of Tendons to the Hand

Why is prompt repair necessary to damaged tendons in the hand?

Introduction

Tendons are a tough band of fibrous tissue lying under the skin that connects muscle to bone. They work with the muscle in order to achieve movement in the hand and to allow the fingers to bend.

Damage to the tendons is a common injury. Often associated with it is damage to the nerves in the hand.

Damage to the Tendons

Damage to tendons is usually a consequence of cuts to the wrist or hand. Many injuries of this type are caused by industrial accidents or falling through glass, in addition to domestic violence injuries. Damage to the tendons is common as the hands are often raised as a way of protecting oneself from harm thereby exposing the tendons.

Damage to the tendons can have serious consequences. Any impairment in action can result in loss of power and grip, numbness, fatigue and stiffness in the wrist and forearms. In most cases the effect can be described as uncomfortable, however consider the circumstances of a plasterer or manual labourer who requires a full range of movement in order to continue their employment. Any impairment can leave them with a serious disadvantage in the labour market.

Diagnosis

The first contact many people suffering from injured tendons have is with their GP or the Accident and Emergency Department. The examining Doctor in A&E should establish if movement in the hand is restricted and be aware of deeper injuries to the hand in addition to superficial or apparent injuries such as bleeding. An ultrasound is a simple and efficient way of establishing if there has been damage to tendons.

Prompt Treatment

If damage to the tendons is suspected there should be an immediate referral to an Orthopaedic Department or Hand Surgery Service, if one is available. This will allow



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wound cleaning, and primary repair of the damage. Primary repair involves tethering any damaged fibres to remaining intact fibres, or stitching divided tendons to create a whole tendon once again.

Primary repair more often than not results in a good recovery, with a full range of wrist extension and almost normal power. This is essential for everyday tasks such as unscrewing jars, turning taps, and throwing a ball as well as more specific movements.

Delayed Treatment

Delayed treatment, or secondary repair does not often result in a good recovery. A severed tendon can retract away from its original attachment and remaining intact fibres can themselves become weakened and detached. It is very difficult, if not impossible to then attach it in the same way again. The damaged tendon can instead be reinforced by attaching it to a tendon from a different part of the arm/hand, or as a last resort an entire tendon graft can take place. If repair is delayed it can lead to muscle wasting from disuse of muscles in the forearm. This can contribute to a functional deficit in addition to the consequences of damaged tendons, such as loss of power and grip. Reconstructing the tendon requires up to 4 months of intensive physiotherapy and rehabilitation.

It is also important to treat any nerve damage associated with the injury promptly. Nerve fibres, if left, can regenerate in an unregulated way causing painful and difficult to treat neuroma.

Conclusion

Failure to appreciate the extent of hand injuries can result in tendon damage being missed by health care professionals. The repair of tendons can be markedly different depending on when it is carried out, with treatment becoming more complex and unpredictable after prolonged damage. In order to achieve the best possible outcome for the patient there should be an immediate diagnosis with surgical intervention to repair the tendons before complete detachment, tendon retraction and muscle wasting occur.

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