Case Report

A Rare Indication for Amputation

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Abstract

A forty-two years old housewife came to the outpatient department. She met with a very bad road traffic accident in childhood resulting in a crush injury of left lower limb and a degloving injury on the right lower limb. She had undergone transtibial amputation on the left and skin grafting on the right lower limbs. The scar has been transformed into a large keloid. Now she is ambulant with patellar tendon bearing prosthesis on the left side and a rocky hard, heavy, insensate right lower limb with a grotesque appearance. She requests amputation and prosthetic fitting on the right side.

Key words: **Crush injury, degloving injury, amputation, prosthesis, keloid.**

Introduction:

We know the common indications for amputation of lower limbs like peripheral occlusive vascular disease, diabetic gangrene, malignancy, trauma to major vessels, etc. But when someone cannot walk with her own natural lower limb because of the weight, absence of sensation and cosmetically unacceptable appearance, the only way out is amputation.

This is not an usual indication for amputation.

There are different techniques used by surgeons to reduce scarring following an injury. Hyperbaric oxygen therapy is used by many surgeons to assist healing. Inside a hyperbaric oxygen chamber the patient is exposed to a 100% oxygen environment at twice the normal atmospheric pressure. These intense blasts of pure oxygen can speed up the healing process of skin grafts[1].

Another healing technique is vacuum assisted closure. In this immediate postoperative procedure, the grafted skin is dressed with a porous material and attached to a tube that connects to a vacuum source. The vacuum helps to draw out interstitial fluid and encourage blood flow to the graft. All potentially infectious fluids in a contaminated wound (however meticulous the wound debridement is) are sucked out and disposed[2].Many surgeons leave the tube for up to seven days after surgery without even changing the dressing in between.

Compressive garments are used to reduce scarring especially after healing of burns wound.

Artificial skin is used for full thickness skin replacement nowadays[3].

Case Report:

This lady had a run-over road accident when she was just eight years while walking to school. She had both her lower limbs crushed badly and was taken to the Medical College Hospital. Her left lower limb was amputated below the knee and with earnest efforts, the surgeons could save her right lower limb even though the skin below the knee was totally avulsed.

She narrated the story of going through a series of surgeries including skin grafts, myofascial flaps and procedures for correction of deformity. She lost one year in school. At the end of the ordeal, she had a patellar tendon bearing prosthesis fitted on the left lower limb and a near normal right lower limb with a stiff ankle joint and grafted skincover with partial loss of sensation below the knee. As years passed by, she noticed progressive hypertrophy of the grafted skin over the right lower limb which got transformed into a keloid (Figs 1 & 2).

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Fig 1- Progressive Hypertrophy of the Grafted Skin with Keloid.

Now she has a deformed right leg and foot which is very hard and heavy with no sensations. It is a hindrance to normal walking. She finds it hard to walk along irregular terrain and to negotiate stairs. Her right lower limb is worse than a prosthesis because of its weight and it is aesthetically unacceptable (Figs3 & 4). Her request for amputation is justifiable.

Fig 2 - Deformed Foot with Keloid Formation

Discussion:

All skin grafts leave scars. Full thickness grafts leave a less noticeable scar because they contain functional blood vessels. Split thickness grafts which lack sweat glands, hair follicles and blood vessels are discoloured and produce unsightly scarring especially if the person has a tendency to form keloids. They need to be moisturised frequently with creams to avoid dryness, scaling and scarring[4].

In the reported case, as the wound was due to a run-over accident on the road, it might have been infected and repeated grafting might have been done. This has resulted in abundant keloid like scar formation[5].

Keloids do not regress with time; hypertrophied scars are not active six months after the injury. As time goes on they become flat, thin and pale[6].Even though keloids and hypertrophied scar morphologically look alike

Fig 3 - PTB Prosthesis on the Left and Huge and Heavy Right Lower Limb

Fig 4 - Posterior View of the Heel

immediately after healing of the wound, as time passes, scar hypertrophy is limited to the boundary of the wound. Keloid encroaches beyond the site of injury into the normal tissue. Histopathologically, keloids contain large and thick collagen fibres composed of numerous fibrils closely packed and there is abundant amorphous extracellular material surrounding fibroblastic cells. This is different from hypertrophic scar, the nodules of which contain fibroblasts and fine,randomly organised collagen fibres.

Intralesional injection of steroids, alpha interferon and laser are used with varying results. Excision , many a times produces a worse scar. But some surgeons still try that.

Conclusions:

The grafted skin, homograft or heterograft especially in a potentially infected wound may undergo unlimited hypertrophy causing unsightly scarring[6]. Most probably in the case reported here,this is what has happened.

As the scar hypertrophies beyond a certain limit, it loses its vascularity and sensitivity and the consistency of the scar becomes hard and the limb becomes heavy[7].

In his eagerness to save at least one lower limb of an eight years old girl, the surgeon might have sutured the avulsed skin after adequate wound debridement. That is the right procedure any surgeon will do.But due to infection, the skin might not have been taken up fully. Probably many surgeries were done to get a skin cover over a large surface resulting in such a bad scar.

Now she finds it difficult to walk with such a limb, she cannot climb stairs, she cannot squat, she cannot negotiate irregular terrain, she cannot move along with her 5 years old daughter, but she can manage her routine household chores including cooking,The only possible solution is to undergo a through knee amputation on the right side.As there is a clear line of demarcation between normal skin and the scar,it is not difficult to decide on the level of amputation. If fitted with a suitable prosthesis she will be able to walk without support. Hopefully she will be able to carry on with her present responsibilities including looking after a five year old child.

So an amputation was necessiated 34 years after an injury!

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