Special lecture 1.
The Concepts of Functional Reconstruction in Replantation of the Head

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Replantation surgery is the best form of reconstruction for an amputated hand or part of it. If correctly selected, properly reconstructed and vigorously rehabilitated the functional recovery can be very good and better than any other forms of reconstructions.

Amputation is a complex injury to the "six" tissues of the hand. In severe cases there is a zone of tissue loss. The replantation surgery is a reconstruction of the "six" tissues. All the injured tissues have to be immediately restored and lost tissues quickly replaced. From a functional stand point the basic structures to be reconstructed are the bones, joints and skin.

This aims to achieve a quality skin cover over a stable skeletal scaffold. The next consideration in the reconstruction is the "cabling and piping". The tendons and nerves are reconstructed first(to provide the future movement and sensation) before the vascular anastomoses are done(to give the hand immediate viability). The reconstruction is certainly a paradox. The most "difficult" microvascular anastomoses seemingly so important, gives only viability but not the function.

The reconstructive technique emphasises on 1) Rigid bone fixation with preservation of joints. The fixation should be most rigid possible without violation of the joint, impinging on the tendon or protruding through the skin. 2) Quality skin cover with at least 50% of good skin edge appositihin and all residual defects to be covered with a flap to achieve primary intention healing. 3) Improved tendon repair to allow immediate active range of motion. Consider tendon graft, tendon transfer or redding if necessary. 4) Proper nerve repair and liberal use of nerve grafting if necessary. 5) Extensive vascular repairs are performed on as many arteries and veins as possible that can be indentified.

Indication for replantation is based on replantation effort over expected functional recovery. A rigid list of indications and contraindications is outdated. Replantability is a concept bases not on the level of amputation, but solely on the quality of the distal amputate. If a artery and possibly a vein can be indentified, that amputate is certainly replantable.

Rehabilitation in such severe injury should start "immediately" and performed "vigorously".

The concept is to give the therapist an ideal case that can withstand a vigorous therapy regime without fear of vascular compromise. Techniques for rehabilitation of combined flexor and extensor tendons have to be developed to overcome tendon adhesions. Early active use and integration has hastened functional recovery.

Replantation has been performed from the very young of 8 months old to the very old of 65 years old and for the very distal tip of the finger to the finger to the proximal upper arm. Viability of the replant cannot be considered as a successful outcome unless it is functional. The author will review the range of these cases and discuss the pitfalls in some of these cases and the reasons for the good success in the others.

Special lecture 2.
Influence of Intraarterial Infusion of PGE1 on Skin Flap Microcirculation

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