Abstract:
The hand is ranked as one of the three most frequent sites of burn scar contracture deformity. Deep burns of the palm occur in camphor burns associated with religious practices. Common presentation of camphor burns is usually a palmar contracture as a postburns sequelae. 17 yr old female came to our department with unusual presentation of camphor burns producing gangrene of right thumb. Patient was managed with debridement and staged reconstruction of thumb and successful outcome obtained.

Keyword: Camphor burns, gangrene thumb, debridement, groin flap, bone graft, neuro vascular flap, distraction osteogenesis

INTRODUCTION:
Hand often gets the brunt of initial burns due to constant use to hold objects. The hand also forms one of the three most frequent sites of burn scar contracture deformity. Burns to the palm are less frequent when compared to burns of the dorsum of the hand. Burns of the palm are often superficial since the palm is thicker compared to other areas. Deep burns of the palm occur in camphor burns; often associated with religious practices, industrial accidents and most often in electrical injuries. Established palmar contracture results in narrowing of the metacarpal arch with the thenar eminence approaching the hypothenar area. This results in hyperextension deformity of the MCP joint of the thumb and flexion at the IP joint. Full release of palmar contracture is usually possible and the raw area is covered by full-thickness or thick split-thickness skin graft. The first metacarpal may need to be fixed in extension till the grafts settle. It is better to use thick skin grafts in the palm than a flap. The bulkiness of the flap prevents cupping of the palm and the ability to hold objects.

ANATOMY OF THE PALMAR APONEUROSIS
The palmar aponeurosis (palmar fascia) invests the muscles of the palm, and consists of central, lateral, and medial portions.

**Central portion:**
The central portion occupies the middle of the palm, is triangular in shape, and of great strength and thickness. The superior border of the palm is in alignment with the transverse carpal ligament and the expansion of the Palmaris Longus Tendon gets inserted. Distal end of the Palmaris Longus divides into four slips, one each for the fingers, the superficial fibers join the furrow of the metacarpophalangeal articulations and incorporating the skin at the transverse fold. The deeper part of each slip subdivides into two processes, which are inserted into the fibrous sheaths of the Flexor tendons. From the sides of these processes offsets are attached to the transverse metacarpal ligament. The digital vessels and nerves, and the lumbrical tendons pass through the slips, where numerous transverse fasciculi bind the processes together. The superficial palmar fascia is formed by the dense fibroareolar tissue in the central part of the palmar aponeurosis. The Palmaris Brevis takes origin from the medial aspect. The superficial volar arch, the tendons of the Flexor muscles, and the branches of the median and ulnar nerves are protected by Palmaris brevis.

Lateral and medial portions:
The lateral and medial portions of the palmar aponeurosis are thin, fibrous layers, which cover, on the radial side, the muscles of the ball of the thumb, and, on the ulnar side, the muscles of the little finger; and in continuation with the fascia of the dorsum of the hand.

Common Presentation of CAMPHOR Burns and its MANAGEMENT
UNUSUAL PRESENTATION OF CAM-PHOR BURNS:
17 year old girl from Gudiyattam following failure in her exams intentionally lit camphor in her right palm as a penance for her mistake fainted after lifting the camphor and sustained Burns to right palm. Initially treated outside with dressings for 15 days and subsequently referred to our hospital for management.

0/E: full thickness burns involving right palm and thumb with dry gangrene of the thumb. Also involving 1st Web, part of the dorsum of the hand, and radial side of the index finger. 1st visit (17th post burn day) Movements:: Thumb – Carpo – Meta Carpal and Metacarpo-Phalangeal joints painful and movements restricted. with limited restriction of extension in the fingers DEBRIDEMENT : Eschar over the palm and thumb was thoroughly debrided. Palmar aponeurosis was intact. Necrotic distal phalangial region and proximal interphalangeal joint of the Thumb were removed and the Proximal phalanx as preserved up to the neck.
PLAN-
SSG for the raw area over the palm and index finger. Osteoplastic reconstruction of the Thumb planned with initial groin flap for durable soft tissue cover of the thumb and later bone lengthening procedures for the thumb

Skin cover -SSG for palm and radial side of index finger with groin flap Cover for thumb was given.

STAGE –II

Ulnar bone graft of 2 cm length harvested from the left ulna for lengthening the radial post & neurovascular island flap from ulnar side of middle finger was raised for thumb tip volar aspect to achieve a sensate thumb
STAGE III- FLAP THINNING WITH DYSTRACTION OSTEO GENESIS:
In the third stage of reconstruction the groin flap was thinned and first metacarpal lengthening was planned. After flap thinning, osteotomy done in the first metacarpal bone and application of the distraction pins and distraction done at the rate of 0.5mm /day for 2
After Distraction adequate lengthening of the thumb achieved.

The patient appeared for her failed examination papers in Xth standard, 3 months after completion of distraction and cleared the examinations using the reconstructed thumb and her wish to pursue her education was fulfilled. This case is the first reported case of camphor burns producing gangrene of the thumb which was successfully reconstructed in our department.

**Conclusion:**
Camphor burns of the palm though rare is not uncommon due to the religious practices. Palm is an important area where it is functional for all individuals in holding things and hence very important in day to day life. Palmar burns has to be managed efficiently to get full functional recovery. Various forms of superficial and deep palmar burns has been elaborated and reconstruction with good functional recovery has been shown. Thumb movements after reconstruction - videos

http://www.youtube.com/watch?v=-wRdmduLqnU
http://www.youtube.com/watch?v=I_PuelxnpQU
http://www.youtube.com/watch?v=OMj3uoh5NWU
http://www.youtube.com/watch?v=LtHwa1RXm7s