

# Towards Fulfilling the Reconstructive Surgical Needs of Children

An initiative of Ganga Hospital, Coimbatore

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*Editorial*

## Anaesthesia and Surgery for Children’s Hands

The 16th of October is celebrated as the World Anaesthesia Day, which commemorates the first successful public demonstration of Ether anaesthesia at Massachusetts General Hospital, in Boston, USA by William Morton. It is one of the seminal events in medical history. The inscription on the monument

commemorating the event and place in Boston reads

*‘Inventor and revealer of anesthetic inhalation,  
By whom pain in surgery was averted and annulled;  
Before whom surgery was at all time agony,  
Since whom science has control of pain’*



We are blessed with a great anaesthesia team at Ganga. As surgeons we can walk into the operating room any day and time, feeling confident that everything will be safe for the patient be it a few days old child or an old debilitated patient with multiple co-morbidities. We at Ganga feel proud that Ganga had a role in the development of anaesthesia services in the region. Our founder Dr JG Shanmuganathan was himself an anaesthesiologist and was the first qualified anaesthesiologist of the city of Coimbatore.

When we started the Specialty centre for Trauma, our anaesthesiologists led by late Dr Ravindra Bhat spearheaded the development of regional blocks. They introduced the system of ‘On Arrival Block’, which provided pain relief for patients as soon as they arrived in the hospital. It gives us immense satisfaction and pride that the practice of ‘On Arrival Block’ and the ‘In theatre resuscitation’ which ensued is hailed as one of the best practices in trauma care in the world. Our skilled anaesthesiologists provide blocks to all the children whose hands we operate so that they are pain free for a long time in the post-operative period.



**Dr JG Shanmuganathan**

Our anaesthesiologists are true team players. They are quite involved in surgical decisions. For example, when we have a child with total absence of thumbs on both sides which would need pollicization (transposing index finger to thumb) the dorsal veins are important to safeguard. Being aware of that, they avoid choosing dorsal hand veins for venous access. That is true team work and this makes surgery for children safe.



Dr Bhat our former Chief Anaesthesiologist helped to set the culture of teamwork between surgeons and anaesthesiologists which is fostered by all the Senior Anaesthesiologists working now. We published the book about the relationship at the untimely demise of Dr. Bhat.

The book can be read at the link,  
<https://gangahospital.com/public/pdf/DR-BHAT-BOOK.pdf>

We dedicate this month’s editorial to our anaesthesiology colleagues who immensely contribute to the outcome of all the surgeries we do on the little hands.

**Dr S Raja Sabapathy**  
**Dr Monusha Mohan**  
 (Editors)

## Restoration of a 5-Digit Hand in Severe Thumb Hypoplasia

Severe grades of hypoplastic thumbs especially Modified Blauth Type 3B, 4 and 5 are treated with transposition of index to thumb position (Pollicization) Parents of children with thumb hypoplasia with reasonable form of the thumb but with extensive loss of metacarpal (type 3) often enquire about options for retaining the thumb as they do not want us to amputate the hypoplastic thumb and transpose the index finger (Pollicization). These type 3 thumbs need bone transfer. This can be in the form of transfer of vascularized or non-vascularized phalanx or part of metatarsal from the foot.



*A child with Modified Blauth Type 3C  
 (hypoplastic thumb with only the first metacarpal head and absent CMC joint)*

At Ganga Hospital, we have been reconstructing type 3 hypoplastic thumbs with non-vascularized toe phalanges. We have had reasonably good results. Pre-operatively, we counsel the parents and explain the pros and cons of the two options; Pollicization vs reconstruction of the thumb.



*The toe phalanx from the fourth toe was harvested extra-periosteally to reconstruct the first metacarpal. The donor foot does not suffer from any functional problem*

Often these children require secondary surgeries like opponensplasty (Huber opponensplasty using Abductor digiti minimi). Though an opposable thumb is aimed at, even if there is no remarkable opposition, the reconstructed thumb acts as a good and stable post and the mobile fingers move to meet the thumb and allows the children to have good function and excellent parent satisfaction.



*The transferred bone graft has united with the metacarpal head remnant. Radiograph shows an open epiphysis which will retain its growth potential. The child is using the hand well to hold objects between the thumb and index finger.*

*We have documented our experience in transferring non-vascularized toe phalanges (for symbrachydactyly) in 40 digits in 19 children in the following article.*

*Sabapathy SR, Mohan M, Shanmugakrishnan RR. Nonvascularized Free Toe Phalangeal Transfers in Congenital Hand Differences: Radiological, Functional, and Patient/Parent-Reported Outcomes. J Hand Surg Am. 2021;46(12):1124.e1-1124.e9. doi:10.1016/j.jhsa.2021.03.012*



## Do you know?

### Chicken Pox can be transmitted to the developing foetus

Chicken Pox is caused by Varicella Zoster Virus which is a highly contagious virus. It can be vertically transmitted to the developing foetus by an infected pregnant woman. The consequences of transmission include growth retardation, congenital varicella syndrome (CVS), early demise and herpes zoster. CVS affects less than 2% of babies born to mothers infected with varicella between 7 and 28 weeks of pregnancy. We have treated two children with features of CVS. The mothers of both the children had Chicken Pox in their first four months of pregnancy. Both the children had cicatricial skin lesions, upper limb anomalies and ocular defects.



*The girl had cicatricial skin lesions, weakness of the right upper limb and hypoplasia of the fingers. Phalangization of the thumb was done with full thickness skin grafting.*



*The girl had hypochromia of the iris on the affected right side (please see the colour difference between the two eyes)*

The details of this girl was published in the Indian Journal of Plastic Surgery and can be accessed at the link, [https://www.thieme-connect.com/products/ejournals/html/10.4103/ijps.IJPS\\_56\\_18](https://www.thieme-connect.com/products/ejournals/html/10.4103/ijps.IJPS_56_18).

### Birth palsy in congenital varicella syndrome: A lesson in anatomy

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*The second child with suspected CVS had features of the clinical triad: scarred skin, weakness/hypoplasia of the upper limb and ipsilateral miosis*



*We separated the fingers and widened the first web. The contractures in the forearm and elbow were released. Split thickness skin grafting was done for the resultant raw areas. At two years, the fingers looked separated with an adequate first web space.*

Pregnant women who are not immune to the Varicella-Zoster Virus should avoid contact with individuals who have active varicella infections. If pregnant women develop chickenpox, a team of specialists should manage their care to determine the best treatment for both the mothers and their newborns.



## Clinician's Corner

### Pfeiffer Syndrome



*A baby with cranial and hand / foot anomalies*

Though the common diagnosis made for a child in the photograph on the side is Apert syndrome, this child has one of the acrocephalosyndactyly (ACS) syndromes termed Pfeiffer syndrome. All ACS patients have cranial as well as digital anomalies. The common syndromes included are Apert, Pfeiffer, Carpenter's, and Saethre-Chotzen syndromes. The cranial or calvarial anomalies include craniosynostosis (premature fusion of one or more cranial sutures) characterised by a misshapen head.

Pfeiffer syndrome is characterised by premature fusion of the coronal and lambdoid sutures and occasionally of the sagittal sutures. The fused sutures restrict the expansion of the skull to the growing brain. The skull expands along the sutures which are open leading to an abnormal skull shape. The skull in Pfeiffer syndrome can



*Misshapen skull with wide head, high forehead and a flat occiput*

be tall, tower-shaped (turribrachycephaly) or clover-leaf shaped. The facial features include a disproportionally wide head with flat occiput, high forehead, midfacial hypoplasia and proptosis.

These children need the help of a multi-disciplinary team consisting of plastic surgeon, neurosurgeon, maxillofacial surgeon, anaesthesiologist and intensivists. Ganga Hospital possesses a multi-disciplinary team capable of handling and curing such children.

The hand anomalies include broad thumbs and great toes with simple complete/incomplete syndactyly unlike that in Apert syndrome (complex syndactyly). The thumbs and great toes show radial deviation at the IP joints (hitchhiker posture). A useful acronym for the features will be CBTT (Craniosynostosis Broad Thumbs and Toes).



*Simple complete or incomplete syndactyly with broad thumbs and toes*

The surgical management includes fronto-orbital advancement, separation of the syndactyly and correction of the radial clinodactyly of the thumbs in multiple stages. At Ganga we are able to offer a comprehensive care for such children. Our Plastic and reconstructive surgery team, Maxillo-facial team work with our neurosurgeons and perform the correction of the skull deformities. Ganga is one of the few centres in the state which has a full comprehensive team to treat such children.



*The child underwent fronto-orbital advancement for correction of the craniosynostosis. He will be taken up for the staged syndactyly separation next.*



## Hand Vignettes

### The Art of Eating with Hands



A good scrumptious leaf meal tastes best when eaten with hands while sitting on the floor cross-legged. Food requires all senses. However, there is often a stigma attached to eating with hands especially in the western culture. But not everyone knows that the fork was a late comer to the European table. Food experts say that people in medieval England and Asia ate with hands before the introduction of the fork in the beginning of the 11th century. The Greek niece of the Byzantine emperor used a golden fork at her wedding to the Doge of Venice. The clergy did not approve of it and commented that “God in his wisdom has provided man with natural forks- his fingers.”

The princess died of plague a few years later and it was announced in Venice that, the death was a result of God’s punishment for her vanity! When Italian noblewoman Catherine de’ Medici arrived in France to marry Henry II, the future French king, she brought with her the forks. With time, forks became a staple of British dining. Now, people around the world have slowly forgotten the essential art of eating with their hands.



### Ganga Hand Operative Course

July 17 - 20, 2025 Ganga Hospital, Coimbatore

Includes live surgery, didactic lectures and small group discussions.

Look for the details soon...



### 2026 World Congenital Symposium of Congenital Malformations of the Hand and Upper Limb.

February 25 - 28, 2026 Ganga Hospital, Coimbatore

This is the first time this will be held in this part of the world. Please mark the dates in your calendar. Includes a Live Operative Workshop.

### Stay Connected

To get updates about our services for children with hand disorders, to grab the future issues of the monthly bulletin and to know what the department of Plastic, Hand and Reconstructive Microsurgery and Burns offers scan the code below.

1. Please point your phone camera at the code
2. A link or icon will come up, tap it.
3. It will take you to our web page using your phone's web browser.



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