

LITTLE HANDS

GANGA
MEDICAL CENTRE & HOSPITALS PVT LTD

GANGA
LITTLE HANDS

An Initiative of Plastic & Hand Surgery Department

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**Dedicated to Increasing Awareness, Understanding, and
Early Action in Congenital Hand Conditions**

LITTLE HANDS



GANGA LITTLE HANDS is an educational initiative by the Department of Plastic, Hand and Reconstructive Microsurgery and Burns of Ganga Hospital, Coimbatore, to share knowledge about Paediatric hand conditions. This is a monthly bulletin and was first started in August 2024.

It has a compilation of various hand conditions treated by us. Little Hands is for anyone and everyone. It is not for surgeons only. The technical tips, 'Did you know?', Picture Gallery, Hand vignettes, Real Life Stories and the 'Clinician's corner' might be interesting to all the readers.

Scan Me



**To read all the issues of
Little Hands**

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Editorial

Continuing the Relationship After Surgery



Shaking a 'Pollicized' hand !

When we operate on a child, we know we are making a life long relationship with the family. Sometimes they meet us after a few decades as happened yesterday. A young man walked into our OP, asking for a certificate to obtain a driving license. We had performed pollicization for an absent thumb 25 years ago. The power in his hands and the dexterity he demonstrated made our day and stunned the residents (images below).



***The patient, now 27 years of age, works in a machinery company.
He is extremely satisfied with the "thumb operation "***

While these long term follow up visits can be very meaningful, we take care to make the immediate post operative period as stress-free as possible for the parents. One of the best things our patients appreciate is our giving them the consultant's personal phone number, making them feel that we are only a phone call away when needed. They rarely need to call us, but leaving with a contact number gives parents immense satisfaction when they leave.

We are keen to follow up every patient ourselves. We feel that each child has had an individualized surgery and the follow up care also needs to be individualized. For that reason we request them to come back to us. When they come, we provide our time, listen to them and explain what needs to be done till the next visit. In our decades of experience we find that parents do not mind traveling hundreds and in some instances thousands of kilometres for the follow up. We know that this day long travel is for the few minutes they spend with us. We respect their decision and make every effort to make their decision worthwhile. It requires attention to detail, listening to their doubts and questions, and communicating back effectively. That keeps them coming back.

At Ganga, we believe that compassion and empathy are critical to relationship forming and to healing itself. We strive to provide that to every single child we manage.

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

Clinicians' Corner

Surgery ≠ Endpoint of Treatment

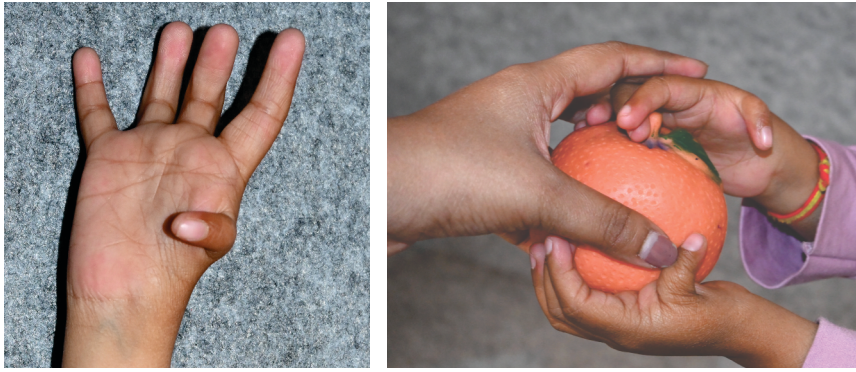
We always try to emphasize that surgery is not the end point of treatment. The follow-up visits are as important as the surgery. It helps us to assess the wound healing and more importantly, the dressing status and gives us an idea how active the little one is! We take feedback from the parents about the challenges faced while taking care of the kid. In a follow-up visit, the parents may come with some new doubts, and we happily answer them. Once the wounds heal, postoperative scar care is initiated.



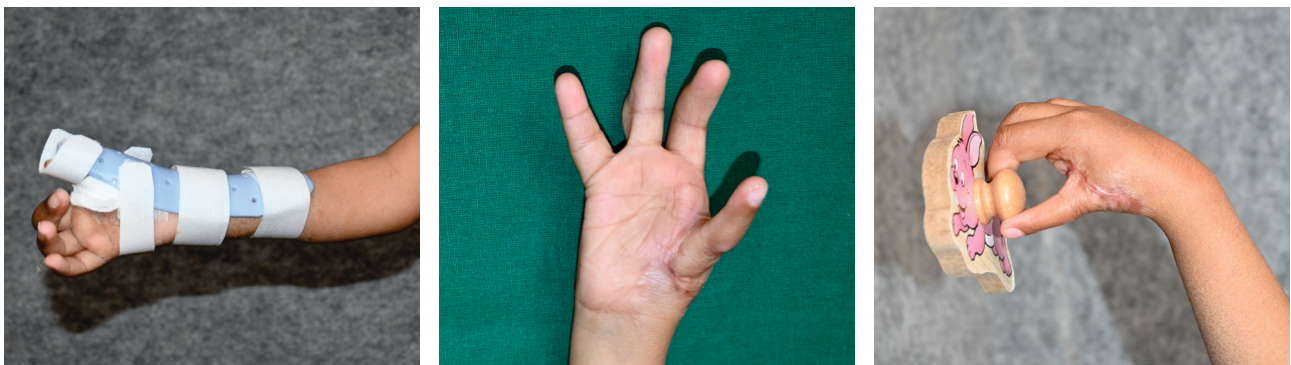
Good scar massage, web taping and postoperative care are required to achieve excellent results after a successful syndactyly separation

Scar massage and web taping are integral parts of syndactyly management. Scar massage is done in circular motion for 2 minutes; twice a day for 3 to 6 months. Web taping is usually done with silicone gel sheets. During subsequent visits, parents may express practical difficulties in doing scar massage in a school-going child or may be concerned about the child removing the tapes. We can help them solve these problems. We might pick up early stages of scar contracture or web creep allowing us to take necessary steps.

Another example would be surgeries for the underdeveloped thumb including opponensplasty, bone grafting and pollicization. The child is called to the opd every three weeks. At around six to nine weeks, the child will start using the thumb. The flexion movement might take three to six months. The patient's parents might have doubts regarding the recovery of motion in the new thumb. Such doubts can be clarified during follow-up visits.



*The child had a severely underdeveloped right thumb and could not grasp objects.
To create a new thumb, Pollicization of the index finger was done*



*To achieve this excellent result, postoperative care including careful dressing changes,
proper splinting and physiotherapy are essential*

Physiotherapy in children needs a lot of patience. Unlike in adults, children cannot be engaged in physiotherapy with boring repetitive exercises. Appropriate toys are employed to bring about the desired digit movements. Assessment is another important part of follow-up visits. We measure the necessary angles using a goniometer to evaluate the digit motion. In older children, we try to measure the grip and pinch strength using Jamar dynamometer and pinchometer. For web creep grading we use Whitely scoring and for pollicized hands, we use Percival scoring. We also assess the satisfaction score regarding the function and appearance (Visual Analog Scale) before and after surgery. Long term hand function is also assessed utilizing parent proxy or patient reported outcome measurement tools such as the PODCI and PROMIS questionnaires. For all the above reasons, follow up visits are not just important but a part of the healing journey



Physiotherapists interacting with children

Did you know?

Neglected Paediatric Trigger Thumb can cause Deviation Deformities

No hand surgery is minor, likewise, no paediatric hand surgery is simple. Among these surgeries, probably the most common day case surgery performed on a child would be an A1 pulley release for a paediatric trigger thumb. We usually follow the protocol where surgery is indicated for a thumb that is locked in flexion and we wait up to 12 weeks for a thumb that is triggering or can be passively extended, before we advise surgery. During this observation period, the follow-up visits are the most important, as they allow us to look for spontaneous resolution or progression to the next stage.

A few years ago, we saw a 11-year-old girl in our OPD with a history of triggering of her thumb that gradually progressed to a thumb that was locked in inflection. But what brought her from 400 kilometers to us was the radially deviating IP joint of the thumb. We had never seen or read such a complication for a neglected paediatric thumb.



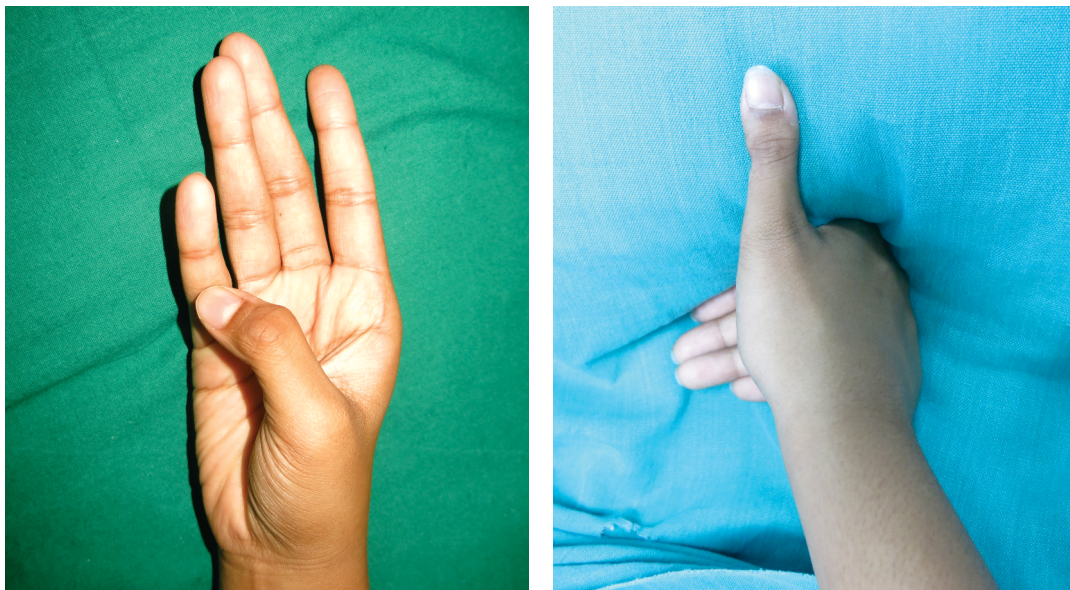
A rare consequence of neglected paediatric trigger thumb

Usually, the paediatrician or the local doctor refers to us whenever they note triggering. So, we curiously asked the mother whether nobody had detected the condition in childhood. She told us that the diagnosis had indeed been made when her daughter was quite young, but she was terrified of paediatric anaesthesia and therefore did not want to subject her child to anaesthesia or surgery. We only wished the follow-up visits had been continued and her concerns had been openly discussed with the local doctor.



At Ganga, the girl was admitted for surgical correction. The A1 pulley was released. This had to be combined with a Z-plasty for the shortened skin on the radial side of the thumb. The IPJ was then stabilized with a K-wire. What could have been done in a few minutes of anesthesia required a longer surgery and anesthesia.

Another 12 years old girl had similar thumb deformity and achieved excellent results after surgery and postop care.



Before and after surgery

So far we have treated twelve children with radial deviation at the IPJ associated with a delayed presentation of paediatric trigger thumb. This deformity as a consequence of neglected trigger thumbs has not been discussed in literature.

The success of observation depends on regular follow-up. Regular follow-up visits help us assess changes in thumb movement, counsel parents, and intervene before secondary deformities develop.

Hand Vignettes

The Pianist's Hand



One of our patients with severe bilateral thumb hypoplasia (underdevelopment) playing piano with the reconstructed thumbs !

I recently came across a child's photo folder in our thumb hypoplasia photo archives. She had undergone pollicization of the index finger to create a new thumb as she was born with no thumb. What caught my attention was a video of her playing the piano. She was doing it effortlessly.



The girl is playing piano with the left new thumb- pollicized index finger (Top three figures) and the reconstructed right hypoplastic thumb (Below two figures)

Diving deeper into the hand mechanics of playing a piano, we found out that thumb is numbered as one in piano keyboard fingering. The other fingers are numbered consecutively. Pianists are taught to use as many of their fingers as possible when executing passages. The thumb reaches, stretches and slips under the fingers to help play beautiful melodies. It lets each finger take its turn. The index and middle fingers are the most powerful and perform much of the fast work. The ring finger is less independent and needs years of training. The little finger is needed for playing octaves.



Playing the piano involves all five digits working together with strength and flexibility. Precise coordination is achieved through practice. Congenital hand differences such as syndactyly, hypoplastic or absent thumb or missing fingers may affect piano playing. However, with appropriate surgery, children adapt remarkably well and can learn to play musical instruments like their peers.



Legends in Congenital Hand Surgery

TOSHIHIKO OGINO

Japan / 1946–2015



Landmark Contributions

- Combined experimental embryology, classification science, and clinical reconstruction
- At Hokkaido University and later in Yamagata/Sapporo, Ogino conducted animal model studies of limb malformations- longitudinal deficiencies and symbrachydactyly
- Led the Congenital Committee of the Japanese Society for Surgery of the Hand in developing a classification system
- One of the Founding members of the Congenital Hand Anomalies Study Group, uniting surgeons worldwide dedicated to congenital hand differences.
- Chaired the IFSSH Congenital Hand Committee for over a decade
- Conference Chair of the International Symposium on Congenital Differences of the Upper Limb in Kyoto (2000)
- Chairman of the Sapporo Hand Surgery and Congenital Differences programme
- Authored 173 original articles, 10 reviews, and 18 book chapters in English, hundreds more publications in Japanese.

TERATOGENIC RELATIONSHIP BETWEEN POLYDACTYLY, SYNDACTYLY AND CLEFT HAND

T. OGINO

From the Department of Orthopaedic Surgery, School of Medicine, Hokkaido University, Japan

Several investigators have suggested that polydactyly, syndactyly and cleft hand might have arisen from a common teratogenic mechanism. To confirm this hypothesis, 75 hands with these anomalies were analysed. Advanced cases with central polydactyly or osseous syndactyly in which the fusion area extends as far as the proximal phalanx and metacarpus are identical to typical cleft hand. The author has induced the same deformities using myleran in rat foetuses. The clinical features of these anomalies in rats were the same as those in clinical cases and the critical periods of these anomalies were also the same. The findings suggest that these hand anomalies may appear in human beings when the same teratogenic factor acts on the embryo at the same developmental period and that they should belong to the same teratogenic entity.

Journal of Hand Surgery (British Volume, 1990) 15B: 201–209

Quotes

A young professor in orthopaedics once asked Ogino "Professor, how to become famous?" Toshi looked at the young man and said, "Just work hard."

Grade of osseous syndactyly / Grade of polydactyly	Grade of syndactyly				
	S-0	S-1	S-2	S-3	S-4
P-0					
P-1					
P-2					
P-3					
P-4					

Fig. 1 Cleft hand formation progressing from central polydactyly and/or osseous syndactyly. (From Ogino, T. A clinical and experimental study on teratogenic mechanism of cleft hand, polydactyly and syndactyly. Journal of the Japanese Orthopaedic Association, 1978).

Help us heal Little Hands | Make a donation

It is difficult to imagine what the parents experience when they find out in the labour room that their newborn baby has a congenital limb defect. The family often feels devastated as their hopes fade. Most of the limb anomalies have a surgical solution that is aimed at making the hand to function in a better way.

Globally, congenital anomalies or birth defects affect 2-3% of births. In India, 1-3 out of 100 babies born are with birth defects. Though musculoskeletal anomalies are the most common defects seen, rarely we find major initiatives aimed at managing these defects. A lot of regional and international proposals are directed at treating and supporting children with congenital heart diseases and orofacial defects like cleft lip/palate. Though isolated congenital limb defects are not life threatening like the cardiac and craniofacial anomalies, they are disabling and lower the quality of life.

You can make a tax-deductible donation today and transform the lives of these kids by giving back their childhood.

To make a donation, please write to rajahand@gmail.com

At Ganga, we have a specialized team of doctors to provide comprehensive care to these children. One of the basic surgical principles of congenital hand surgery is to correct the deformities before the child attains school going age. Often these defects are bilateral and involve multiple fingers, necessitating staged surgical procedures. We have highly experienced Paediatric anesthesia staff to support the surgical team. The associated anomalies are taken care of by our Pediatric orthopedic, spine, maxillofacial and cardiac teams. Ancillary services like physiotherapy, nutrition and speech therapy are also available.



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.

To make Donations

Account Number : 1120115000010920
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Swift Code : KVBLINBBIND



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