

Is Congenital Hand Surgery Really Cosmetic Surgery?

Appearance is increasingly important in our society with improved global communication and socialisation. In congenital hand surgery, like craniofacial surgery, there are structural abnormalities which cause functional disturbance but, unlike with an airway problem, children with congenital hand anomalies adapt and live largely with greater independence than their anatomy may infer. However, surgeons continue to see these patients, and continue to operate on them. Many procedures result in stiffness and loss of normal motion of one or more joints. In adult hand surgery, this would be unacceptable in the absence of severe pain. Why, then, do we continue to compromise joint functioning in these patients? It is the parents and surgeon's distress at the abnormal appearance of the limb that we are alleviating. We attempt to justify this by stating that the child's function is improved. Alice Walker, American writer and poet, stated "People do not wish to appear foolish; to avoid the appearance of foolishness, they are willing to remain actually fools" Is it the truth that we are improving function or are we fooling ourselves?

Most congenital hand surgeons are aware of the importance of appearance to both the parents and the child. Many surgeons find the appearance sufficiently abnormal to feel a compelling desire to offer surgical correction. Few, however, acknowledge this openly in writing and, when they do, it is invariably as a footnote to the mainstay of their treatment for functional reasons. Professor Simon Kay is more candid, saying "Generally the guideline in considering reconstruction is whether or not the overall function of the hand may be improved, although it is also natural and necessary to take into consideration the appearance of the hand"ⁱ.

Congenital hand surgery is reconstructive. However, in most major congenital anomalies, it is not possible to make the limb entirely normal, neither in appearance nor in function. Should surgeons then continue to make the naturally abnormal limb, unnaturally abnormal with the addition of scars and potentially other surgical sequelae? The free toe transfer for a monodactylous symbrachydactyly, although it may add function, will also make the hand more obviously abnormal. At the same time, these procedures medicalise the child and expose them to a series of interventions that affect their school attendance, socialisation and participation in

normal activities with their peer group. This, coming during their social and intellectual development, may affect their later integration into society.

To justify this intrusion, we need to question what is hand and upper limb function? Is it related to the anatomy and the range of motion of an assortment of joints? Are some joints of lesser importance and is that accounted for in any scoring systems? Is function task-related? Does it relate to a series of everyday individual tasks and how these can be performed? Does it relate to the ability to independently and at speed carry out a timed test of fine motor function? These all are included in some of the scoring systems that have been developed to assess upper limb function. However, these are all relatively crude and fail to fully encompass what normal upper limb function entails.

It is accepted that what it is possible to demonstrate is frequently not what happens in real life – that is, what the child can do is not always what they will do normally. The child may be capable of fine pinch grip with a pollicised index finger in the clinic but may revert to a ring-little pinch when unobserved as this may be stronger and more dextrous despite its disadvantages of anatomical positioning.

The hand is not purely a mechanical device with which to manipulate objects but is also a social, sexual and communicative organ. Any assessment of upper limb function needs to include information about integration of any fine manipulative ability and strength into normal social and school/work environments as identified in the International Classification of Functioning, Disability and Health which includes measures of bodily functioning, activity and participation.

Social functioning in UK includes the ability to meet other people, to greet them with a strong handshake and to eat and drink with them. In certain cultures, the requirement to eat with the right hand may make socialisation difficult in those whose right hand is incapable of fulfilling this function.

The hand is a tool of communication used in conversation, particularly in some of the Mediterranean countries but, to a lesser extent, in most cultures. Communication

implied by a gesture is culture-specific. In the UK, individuals with an inability to bend their middle finger may get into trouble both in the playground and later life.

Participation in common sports or interests is part of normal hand function although the exact requirements may be sport or interest specific and those with a hand difference may choose to shy away from those that cause the greatest physical difficulty.

Sexual relationships start with hand holding and progress through the stroking of more intimate areas to intercourse. These activities require the almost constant exposure of the hands to view or to touch, an ability to grip and to manipulate objects in a normal manner and a degree of upper limb strength. Outside of the bedroom, it is only the head and the hands that are routinely exposed. The head can be covered with a hat or scarf, and, in certain societies, the face with a veil. The hands, however, remain exposed and covering will impede their function.

This exposure makes any anomalies difficult to disguise, not only from the rest of the world but also from the patient themselves. The patient may not wish to be reminded that they are different. Most of us glance in a mirror only a few times a day and only then are we confronted with our facial imperfections. We view our hands throughout the day as we use them to manipulate the world around us. For those with hand anomalies, there is a constant reminder of their differences, every time they use their hands for anything. In early childhood, Apert syndrome patients are unconcerned by their facial differences - they observe that all their friends appear different to each other. They notice in nursery that their fingers differ in number to their friends and their desire to have the same number as others predates any desire for improvement of their facial appearance. The appearance of their hands affects their social functioning, even at an early age as they can't count to ten on their fingers. Once their hands are restored to ten digits, most requests are about improving the aesthetic appearance despite the lack of interphalangeal joint movement due to symphalangism, which most adult hand surgeons would perceive as their greater disability.

How is the appearance of the upper limb perceived? Abnormalities in the appearance of the upper limb are noted in two ways: the way it rests in a static position and the

way it works, its dynamic appearance, in comparison to normal. The static position with the digits in the normal cascade can disguise amputation of the end of a digit or a flexion deformity of a joint but usually highlights anomalies including the absence of fingers or the presence of additional ones. The dynamic hand appearance is about how the individual uses that hand compared to normal. How a hand may look when at rest and when working may be different in the same individual.

The patient without a thumb, at rest may appear as if the thumb is hidden in the palm but in dynamic mode, the use of the index-middle or ring-little finger pinch will make the thumb's absence immediately evident since the hand is being used abnormally. Conversely, the patient with the symbrachydactyly with a normal thumb and a free toe transfer may have a conspicuously abnormal hand at rest but when in use, its dexterity and ease of use may disguise this. This was demonstrated after the 2005 FESSH meeting in Gothenburg when a large number of experienced hand surgeons passed through the airport duty-free shop without noticing that the man serving them had symbrachydactyly with a double free toe transfer!

Oscar Wilde stated: "It is only shallow people who don't judge by appearance". When a child with a congenital limb anomaly is born, the parents are distressed, grieving for the normal child that they had wished for. The mother blames herself for the child's anomaly and feels guilty. Upper limb anomalies are frequently visually obvious and the friends ask the family when they are getting it corrected. By the time, the congenital hand surgeon sees the child, the parents have grown to expect restoration of the anomaly to normal. The mother has envisaged her child's life in terms of teasing and social exclusion with the deformity that exists and her concerns are frequently related chiefly to the appearance of the hand. After all, how much of a functional defect will, for instance, a syndactyly of the third web create? The degree of distress of the parents is outwith any functional disability which this deformity will cause.

In contrast, the surgeon emphasizes the mechanical functioning of the upper limb, and appearance is given a firm second place, if any consideration at all. The parents pick up on this and, subsequent consultations largely ignore "the elephant in the room" – the fact that the parents, and sometimes later the child, are concerned about the

appearance of the limb. This occurs particularly with boys where cosmetic concerns are considered unmanly. This may continue until the child has an independent voice and expresses a contrary opinion to the parents who have been advised that function is paramount.

Typically, this independent voice appears in adolescence and the surgeon attributes concerns with appearance with the hormonal changes and psychological emphasis on image that surround adolescence. The adolescent matures into adulthood and requests surgery to correct their abnormal appearance, despite the risk of loss of “function”. Textbooks suggest psychological evaluation for these adults and discourage surgical intervention at this stage, as a pattern of use is entrenched by then, brain plasticity is lessened and function will be lost.

The adult seeks work and may encounter the problem that Niccolo Machiavelli noted “For the great majority of mankind are satisfied with appearance, as though they were realities and are more often influenced by things that seem than by those that are”.

The appearance of the upper limb suggests to potential employers that the individual may not be able to do the job concerned before fully evaluating their capabilities.

Thornton Wilder stated “It is only in appearance that time is a river. It is rather a vast landscape and it is the eye of the beholder that moves”. These adults may have the abilities but may not be given the chance to prove them. It is only when they show how adaptation has produced function, despite the impairment and without disability, that they are given the opportunities they deserve.

In aesthetic surgery, the importance of the appearance of the hand is increasingly acknowledged with treatment options to disguise the signs of ageing on the dorsum of the handⁱⁱ, and international conferences based on its aesthetic appearance. Francisco del Pinal has emphasised that, after trauma, loss of the normal aesthetic cascade of the hand is difficult for the patients to accept and some will consider toe transfer to recover this “acceptable hand”.

The congenital hand patient, similarly, may be convinced from an early age to accept a poorly aesthetic hand, but will desire a “normal” one. It is not wrong to consider the aesthetic appearance of the upper limb - the fault comes in our embarrassment at this

desire in ourselves. We are taught that function is what we should strive to improve. Adrian Flatt is famously quoted as describing the cleft hand as a “functional triumph but aesthetic disaster”. Many children have been denied surgery because of this functional ability despite the “lobster claw” hand appearance, which is so distinctive that, in an earlier era, it was confined to the sideshows of travelling circuses. Yet, it is tantamount to heresy to suggest operating purely for reasons of appearance, especially where function may be compromised.

We continue to openly criticise those from other cultures, who strive at all costs to provide a five digit hand, even where the digits do not work. Who are we to understand what social functioning within their culture requires? The amputated finger in our society suggests clumsiness but has no associated connotations of punishment after crime.

We criticise, yet, we excise the extra ulnar sided digit and reconstruct the fifth metacarpophalangeal joint, producing stiffness in it. We either fail to acknowledge the latter or blame it on the joint being congenitally abnormal – after all, the surgery was for functional reasons! Or was it? What functional benefit did that surgery bring the toddler who wasn't bothered by it? It brought the surgeon and the parents a normal aesthetic appearance with the normal compliment of digits on the hand.

The presence of a duplicate thumb in Far East Asian culture is considered to be an omen of good fortune, whereas in the West, we routinely remove one of the thumbs and reconstruct the remaining thumb despite knowing that this is not truly a duplication but a division of the structures needed to create a complete thumb and that treating this surgically will result in a stiffer somewhat hypoplastic thumb compared to the normal.

In aesthetic surgery, it is accepted that appearance affects social functioning. The risk of compromising function by causing a facial nerve palsy in a face lift procedure in a normal individual is accepted and efforts are made to minimise this risk. How much more should we be prepared to acknowledge, accept and minimise risks to function in order to approximate the congenital limb appearance to normal?

Congenital hand surgery stresses the need to treat for functional improvement. Yet, only in free tissue transfer and trigger thumb release is any gain in movement possible. Whilst we fail to acknowledge the need to address the appearance of the limb, either we avoid surgery and the patient is denied the option of an improvement that may bring social benefits or we proceed, but understate the risks or fail to examine the consequences of our actions in fear that we will be criticised for operating for cosmetic reasons. In other areas of surgery, where we aim to restore both form and function, this dichotomy of need is familiar. We accept a risk of functional loss in surgery on microform cleft lip or single suture craniosynostosis. It is time to be honest with ourselves, our patients and their families and acknowledge that we do this in congenital hand surgery. Only then, can we obtain truly informed consent in relation to both the functional and aesthetic outcomes of the surgery because only then will we honestly and without fear of condemnation be looking at all areas of the outcomes of our surgery.

ⁱ <http://www.plastic-surg.co.uk/HS-toe2hand.htm>

ⁱⁱ <http://www.transforminglives.co.uk/beautiful-hands.html>