

Reconstruction of Thumb Hypoplasia

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Introduction. Congenital hand anomalies are rear 0.16–0.18% for newborns in Latvia. 70% of all anomalies are syndactyls. 19 200 newborns were registered in Latvia in 2010, which means that every year we have approximately 30 newborns with hand defects. Thumb hypoplasia is a spectrum of congenital abnormalities of the thumb varying from small defects to complete absence of the thumb. Three patients were consulted with thumb hypoplasia in 2010.

Material and methods. 20 patients were treated in the Centre of Plastic and Reconstructive Microsurgery (CPRM) of Latvia between 2005–2012. All operations were done in combined anaesthesia: general + peripheral block (wrist or foot block). Thumb hypoplasia was classified according to Blauth classification – type I – to V. Type I – no need for operation, functional thumb. Type V – absent thumb. Type V – 2 patients' bilateral, Type IV – 3 patients, Type IIIb – 5 patients, Type IIIa – 3 patients, Type II – 7 patients. Early reconstruction at the age 10–12 months for thumb is used to improve the mental development of a child. Severe and combined deformities can be operated till the age of 4–6 years to get good functional and aesthetic outcome. 15 operations were done at the age 10–14 months, one toe to hand transplantation was done at the age of 10 years. EIP (extensor indicis proprius tendon) transfer was used to reconstruct EPL and get stability of MCP and IP joints, tendon were sutured around MCP joint and IP joint. First web space deepening was done if necessary using double butterfly or bilobed Foucher flaps. Additional non-vascular toe phalange transplant and opponensplastic can be used to improve thumb functionality.

Results. All patients get stable functional thumb. 1 reoperation was done due to MCP instability. One patient's parent was unsatisfied with the result; therefore, reoperation was conducted.

Conclusion. Thumb reconstruction is very difficult as a patient needs to have a stable, functional and good looking thumb. Pollicisation is the method of choice for grade IV and V but for some patients toe transplantation is more applicable. EIP transfer is very useful to reconstruct grade II and grade IIIa hypoplasia as easily stable MCP, IP and even CMC joints can be ensured. For grade IIIa and IIIb some additional methods as non-vascularised phalange transfer or opponensplastic using opponens digiti minimi muscle can be done. Combined anaesthesia makes it easier to manage general anaesthesia and postoperative pain.