

Pediatric opponensplasty – two methods- and their results.

Gergő Józsa ¹, Tamás Kassai ²

¹ Division of Pediatric Surgery, Traumatology and Otorhinolaryngology, Department of Pediatrics, Clinical Complex, UPMS, Pécs, Hungary;
² Department of Pediatric Traumatology, Dr. Manninger Jenő National Traumatology Center, Budapest, Hungary;

Introduction:

Opponensplasty is a surgical procedure performed to **restore thumb opposition**, a **critically important function** for hand dexterity that **allows for proper grasp**. In children, congenital hand deformities, trauma, or conditions like cerebral palsy can cause thumb deficiency.

The goal of opponensplasty is to reconstruct the dynamic movement of the thumb. Various techniques are used, often involving tendon transfers to recreate this vital movement.

Purpose:

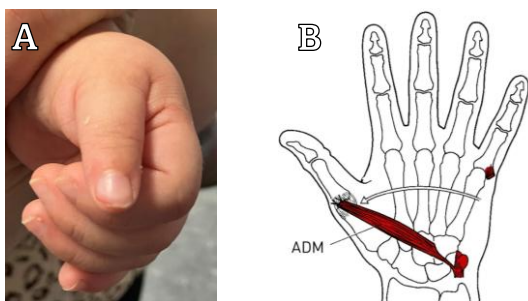
The authors present 4 cases treated by **two types of opponensplasty** and their results.



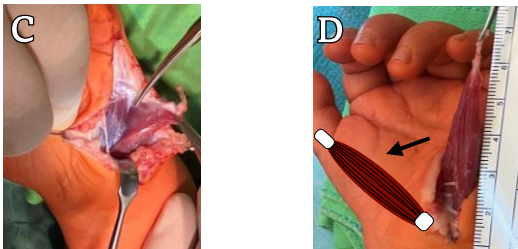
Methods:

The authors performed **opponensplasty** in all four children due to **congenital thumb deficiency**. They examined **demographic data**, the **type of surgery**, and **functional outcomes**.

Opponensplasty with abductor digiti minimi transfer



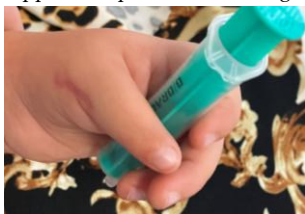
Preoperative image (A) and schematic illustration of the surgery (B)



Dissection (C) and transposition (D) of the ADM.

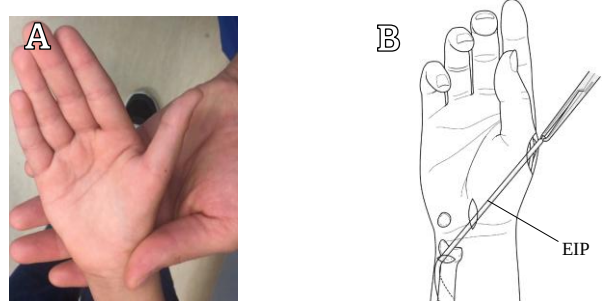


Thumb in opposition position following ADM plasty.



2-month follow-up.

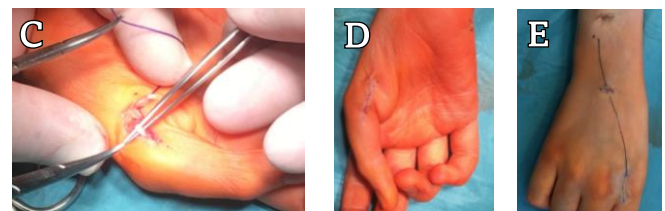
Opponensplasty with extensor indicis proprius reposition



Preoperative image (A) and schematic illustration of the surgery (B)



EIP disconnection and relocation, with subcutaneous tunnelling.



EIP fixation of the abductor pollicis brevis (C) and the surgical scar on the ventral (D) and dorsal aspect (E).



6-month follow-up.



Conclusion

The need for **opponensplasty** in the **pediatric population** is **relatively rare** but can be **crucial for improving hand function** in **affected children**, such as writing, holding objects, and self-care activities. Due to the adaptive and developing nature of the pediatric musculoskeletal system, careful surgical planning and a thorough understanding of pediatric anatomy are essential. **In our experience, these surgical techniques reliably improve thumb opposition** for children with thumb deficiency. **Additionally, postoperative care and rehabilitation play a critical role in achieving optimal functional outcomes.**

Results:

Three girls and one boy were involved. The **median age** was **4.5 years** (ranging from 1.5 to 10 years). In **three cases**, the surgery was **unilateral**, and in **one case**, **bilateral surgery** was performed in two stages. A total of **three Huber opponensplasties** and **two EIP (extensor indicis proprius) opponensplasties** were performed. Good functional outcomes were observed during follow-up.