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Very Early Use of Hand Orthosis for the Treatment of Finger Flexion Deformity in a 1-month-old Child

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There are some problems caused by flexion finger deformity; difficulty in hand opening, precise finger movements and activities of daily living. Treatments of flexion finger deformity include stretching exercise, hand orthosis, and surgery. However, there are no protocols set up, especially in a very young child. The objective of this report is to describe the early use of hand orthosis for the treatment of finger flexion deformity in a 1-month-old child. A 30-days-old baby in NICU had a consultation with the Pediatric Rehabilitation Medicine for both hand deformity. He was born at GA 37+3 weeks, 3270g, by caesarean section, He had no family history, and he was the 2nd child. First child was 5 years old who was healthy. Physical examination at 30 days showed head lagging with traction reaction, increased muscle tone at both shoulders, elbows, wrists, and fingers (right > left), and both finger flexion deformity (right > left) (Fig.1). Assessments included: 1) both finger flexion deformity, 2) dysphagia, 3) apnea d/t r/o congenital hypoventilation syndrome, 4) mild hydrocephalus, 5) hydronephrosis, hydroureter Gr2 (both), and 6) left hydrocele. Bedside PT, bedside swallowing therapy, and both hand orthosis (Fig. 2) were prescribed. There was no abnormality in tandem MS, chromosome karyotype, and mitochondrial gene mutation. Diagnostic exome sequencing was done and the result is pending. Brain MRI showed enlarged left lateral ventricle. After discharge, he underwent rehabilitation treatments and kept on using hand orthosis, and his finger flexion deformity became flexible and showed improvements. However, he had developmental delay (Table 1). This case shows improvement of the patient's flexion finger deformity with early use of hand orthosis and rehabilitation treatments. For young patients with flexion finger deformity, early treatment is very important for better outcome, and very early use hand orthosis should be considered as one of the treatments.



Fig. 1 Both finger flexion deformity at 30-days-old



Fig. 2 Both hand orthosis at 30-days-old

Table 1. Results of a Korean Developmental Screening Test for Infants and Children

Results at	6 months	12 months
Gross motor (months)	1	6
Fine motor (months)	3	3
Cognition (months)	4	6
Language (months)	5	6
Social interaction (months)	2	5