

소아재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

### **P 3-3**

## **The Risk Factor and prognosis of Clavicular Fracture in Infants with congenital muscular torticollis**

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### **Introduction**

There have been limited studies on the risk factor of clavicle fracture combined with congenital muscular torticollis (CMT). Therefore, the aim of this study was to investigate the risk factors associated with clavicular fracture in infants with CMT and its effect on prognosis.

### **Subjects**

We retrospectively reviewed the medical records of 134 patients diagnosed as CMT in 449 patients complained of abnormal head and neck posture. CMT was diagnosed when subjects met the following criteria: (1) thickness of the involved SCM  $\geq$  2 mm of the contralateral side, along with increased echogenicity on ultrasonography.; and (2) show shortening of the unilateral SCM. Clavicular fracture was diagnosed when the fracture lines and/or callus were detected on antero-posterior plain radiographs of the cervical spines and/or clavicles. A total 134 infants with CMT were included in this study. The clavicular fracture was found in 15 of 134 infants, with the concurrent rate being 11.19%. Demographic data, including birth weight, maternal age, gender, gestational age, delivery method, SCM thickness of ipsilateral side, thickness ratio to contralateral side, treatment duration, and the first visitation date after birth, were collected by reviewing the medical records.

### **Results**

CMT and clavicular fracture occurred on the opposite side of each other in 13 out of 15 subjects. In chi-square analysis, discordance of side between CMT and clavicular fracture was significant ( $P = 0.004$ ). In a comparison of the demographic data between CMT infants with or without clavicular fracture, there was a significant difference in delivery mode and birth weight ( $p < 0.05$ ). However, there was no significant difference in the maternal age, gestational age, SCM thickness ratio, first visitation to the clinic, and gender. In a multivariate logistic analysis, the birth weight was the only significant parameter for predicting clavicular fracture in CMT infants ( $p < 0.05$ ). The area under the ROC curve of the birth weight for predicting clavicular fracture was 0.659 ( $p < 0.05$ ). The

optimal cut-off value obtained from the maximum Youden index J was 3470g, and the odd ratio of clavicular fracture in CMT infants increased by 1.244 times for every 100g of birth weight. There was no significant difference of treatment duration between CMT infants with or without clavicular fracture. In a multivariate regression analysis, the SCM thickness ratio was the only significant parameter for predicting treatment duration in infants with CMT ( $p < 0.05$ ).

### Conclusion

This is the first report on the risk factors of clavicular fracture in CMT infants and its effect on prognosis. Birth weight can be a clinical predictor for clavicular fracture in CMT infants. However, presence of clavicular fracture is not associated with treatment duration. This study suggests that physiatrists need to be aware of the possibility of a clavicular fracture in CMT infants when the birth weight is greater than 3470g.

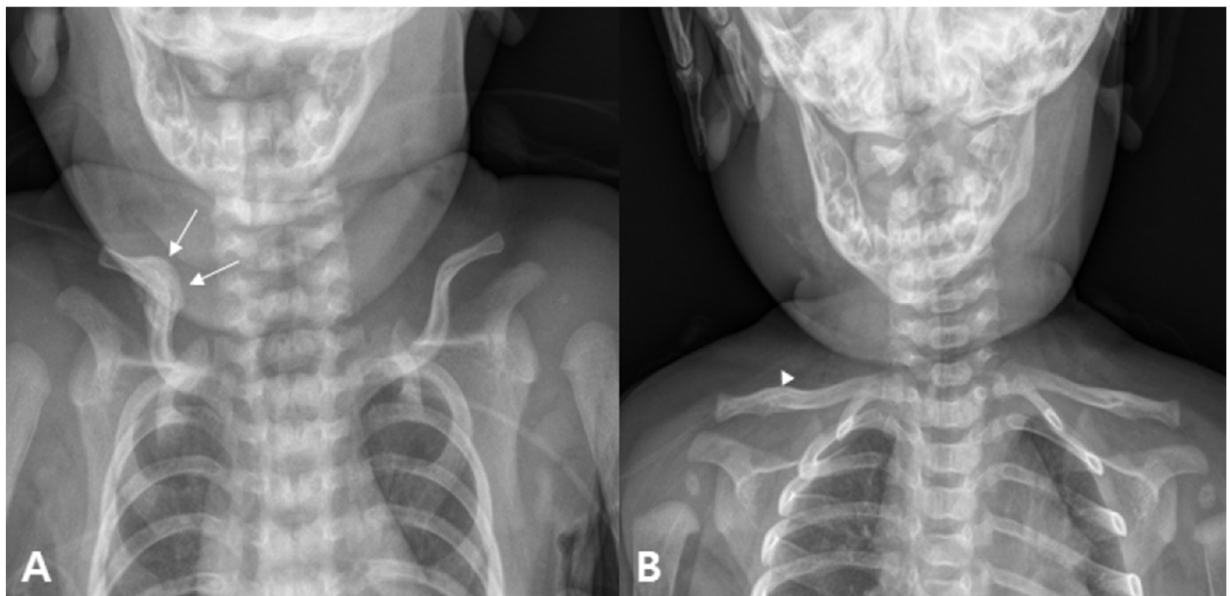


Figure 1. (A) Antero-posterior plain radiographs of the clavicle showing callus formation of the right clavicle (arrow). (B) Follow-up plain radiograph at 4 months after birth. Callus formation was nearly invisible, and it was difficult to find any difference between the two clavicles (arrowhead).

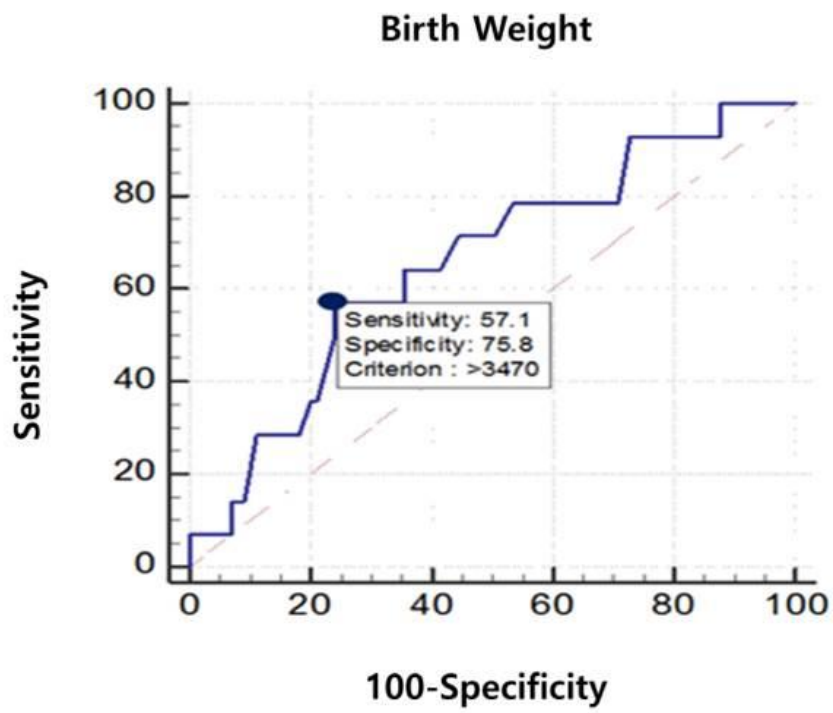


Figure 2. ROC curve of birth weight in patients with CMT. Youden index J was 3470g (sensitivity: 57.14%, specificity: 75.76%).