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Calcification of the ligamentum arteriosum with suspected fish-bone foreign body on computed tomography

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An 18-month-old girl was admitted to our hospital with a severe sore throat and vomiting, which she experienced immediately after eating sea bream. Firstly, laryngeal fibroscopy was performed by an otolaryngologist, but no fish bones were found. Plain computed tomography (CT) of the chest revealed a structure measuring approximately 6 mm in length with high linear absorption in the left mediastinal region at the level of the carina (Figure 1). Because a deeply piercing tracheal or esophageal foreign substance could not be completely ruled out, esophagogastroduodenoscopy (EGD) and bronchoscopy were performed under general anesthesia, which also did not reveal any fish bones. Contrast-enhanced CT was performed to confirm the presence of any linear structures (Figure 2). The contrast between the blood vessels showed the presence of a linear structure on the outside of the esophagus, at the sagittal section, in the vicinity of the ductus arteriosus closure, which connected the pulmonary artery with the aorta. The linear structure was finally diagnosed to have occurred due to calcification of the ligamentum arteriosum.

Computed tomography is a useful method for the identification of esophageal fish-bone foreign bodies. Therefore, CT should be considered as the first-choice technique for the diagnosis of esophageal fish-bone foreign body.[1] When a fish-bone foreign body is suspected on CT, it is necessary to distinguish it from calcification of the ligamentum arteriosum. Calcification of the ligamentum arteriosum has been reported in 13% to 37.9% of chest CT examinations in children.[2,3] As calcification of the ligamentum arteriosum is not rare, it is necessary to distinguish it using contrast-enhanced CT in case of accidental ingestion of fish-bone foreign bodies. Contrast-enhanced CT may be more useful than plain CT to distinguish between the two. However, CT examination using contrast agents requires careful consideration, particularly among children, due to the side effects of contrast agents. Awareness about the calcification of the ligamentum arteriosum on CT images by clinicians may help avoid further unnecessary examinations.

In conclusion, when a fish-bone foreign body is suspected and plain CT is performed, it is important to be aware of the presence of

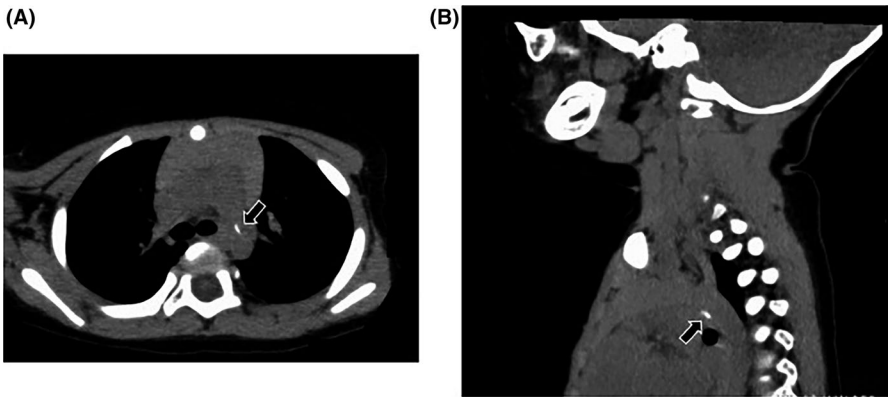

FIGURE 1 Chest plain computed tomography findings with horizontal (A) and sagittal (B) sections. A structure measuring approximately 6 mm in length with high linear absorption was revealed in the left mediastinal region at the level of the carina

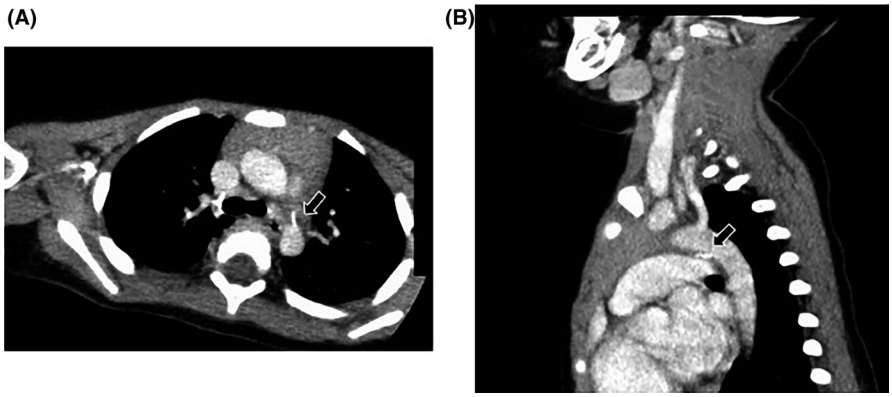

FIGURE 2 Horizontal (A) and sagittal (B) sections of chest contrast-enhanced computed tomography revealing a linear structure on the outside of the esophagus at the sagittal section near the vicinity of the ligamentum arteriosum closure. Black arrow; calcified structure

the calcification of the ligamentum arteriosum in advance. Thereby, further unnecessary examinations (contrast-enhanced CT, bronchoscopy, and EGD) can be avoided.

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CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

AUTHOR CONTRIBUTIONS

TK was involved in all stages of patient management and wrote the manuscript. AN performed the treatment, analyzed the data, and collaborated as the reviewer. All authors read and approved the final manuscript.

INFORMED CONSENT

Informed written consent was obtained from the child's mother for the publication of the clinical images and clinical data.

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