

Brief Note

Complete Tracheal Cartilagenous Ring

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Key words : trachea — cartilage — tracheal ring —
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The trachea is a cartilagenous and membranous tube, about 10 or 11 cm long, continued downwards from the lower part of the larynx.¹⁾ It is not quite cylindrical, because the posterior portion of the trachea lacks the cartilage and is flattened with its pars membranacea. Its external diameter from side to side is about 2 cm in the adult male, and 1.5 cm in the adult female. In the living, the lumen is smaller than in the cadaver, and its diameter in the adult is about 12 mm. The trachea is very mobile and expansile. It can extend and shorten very rapidly. Such flexibility is endowed by the discontinuity and C-shape of the cartilage. Rarely, the trachea is composed of an almost completely cartilagenous "O" ring with the absence of pars membranacea.²⁾ This condition was first noted in 1938³⁾ and has been variously designated; "O" ring, "napkin ring", "stove-pipe trachea" and complete tracheal ring.^{4,5)} It is well known in the otolaryngologic-pathologic literature and has also been noted in a few surgical reports.^{6,7)}

Herein described is our experience of complete tracheal cartilage ring, incidentally found in a 44-year-old man with diabetes mellitus, long-standing hypertension, and intracerebral hemorrhage. No respiratory signs or symptoms were noted before the last episode of cerebrovascular accident. Postmortem examination disclosed the tracheal cartilage to be entirely circular without pars membranacea (Fig. 1) from the first cartilage ring to the one 2 cm above the carina. The external diameter was 1.6 cm and luminal diameter was 1.2 cm.

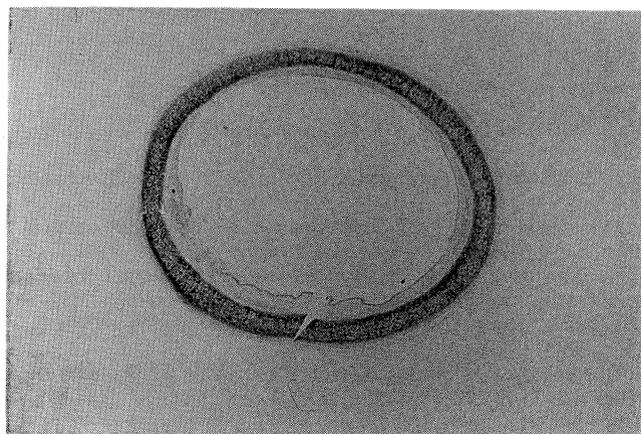


Fig. 1. A complete (O-shaped) cartilagenous ring of the trachea in this 44-year-old man. Mag. $\times 4.5$

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Fig. 2 is a cross section of the trachea taken from a 60-year-old woman with 153 cm height for comparison. It is obvious that the trachea of this man with a height of 157 cm is much smaller.

Complete tracheal cartilagenous ring can produce a stenosis of the trachea, and may be associated with anomalous left pulmonary artery (the ring-sling complex).⁸⁾ This patient's trachea was small and stenotic but it apparently did not cause any symptoms or have other anomalies.

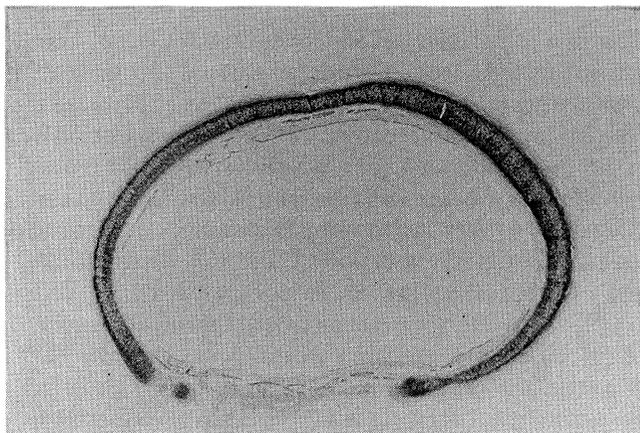


Fig. 2. A C-shaped cartilage of the trachea in a 60-year-old woman for comparison. Mag. $\times 4.5$

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