

To prevent the misunderstanding of the true status of the spread of cancer to the trachea: historical review

Abstract

This review analyzes concepts of cancer spreading to the trachea as they were outlined in articles published during the 19th century. It is shown that cancer of the neck greatly interested the medical masters of yester years. Now, since there is continuing interest in the surgical management of thyroid carcinoma infiltrating the trachea, the historical antecedents of the problem are worthy of documentation.

Keywords: neck cancer, spread, trachea, interpretation, history

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Introduction

In his 1973 worthy work, the spread of tumours in the human body, Willis¹ devoted a chapter to the invasion of sundry unusual sites. Among them, he included the trachea. However, his sole historical reference was to a 1926 article that contained only two instances of melanotic growths associated with metastatic nodules in the tracheal mucous membrane. Therefore, to prevent misunderstanding of its status, let me review the historical examples of cancer spreading to this organ.

Historical texts

Apparently, the tendency was to lump together the larynx and the trachea in previous documentations. Thus, this combination was portrayed in the case written up by Haward² in 1882. Concerning it, a 59-year-old woman presented with thyroid tumor which, at necropsy, “surrounded the anterior half of the larynx and upper part of the trachea, the air tube being flattened from before backwards.” Unfortunately, the areas stated to have been sampled for microscopy were those of the cranium, scapula, ilium, spine, lung, liver, kidney and spleen. In particular, there was no mention of the trachea being sampled.

In 1860, Bristowe³ reviewed several cases of lung cancer, emphasizing “the more uncommon features” presented by this tumor. In this respect, Case 3 was well described thus: The bronchi (especially the right), and the lower part of the trachea, were surrounded, more or less, by a continuation of the same growth. The mucous membrane of the lower inch of the trachea was studded thickly with small nodules of cancer, from the size of a tare downwards. These were attached by broad bases, and were in some cases single, but generally, more or else confluent and clustered.

In 1868, Bristowe⁴ was again perceptive in his description. This time, the growth arose in the esophagus and was of the mucinous or colloid type. As he penned: The air-passages also were healthy as to their mucous surface and undiminished in caliber, with the exception of the bronchi and lower part of the trachea, the mucous membrane of which was studded pretty thickly with small opaque white points, projecting above the surface. The same nodularity or discreteness

was reported in 1886 by Carrington⁵ who was moved to present the case because of its “considerable rarity.” The patient was aged 47 years. He had developed an enormous thyroid tumor which “passed continuously into a mass of softened enlarged glands.” For more details, he wrote.

The trachea did not appear to have been compressed. Its mucous membrane was intensely injected, and where the tube was conterminous with the growth it presented numerous discrete white nodules, varying in size from millet to a hemp seed, which appeared to be secondary growths arising by direct continuity. It is necessary to note that the old authors were actually cute contributors. For instance, Moxon⁶ took the trouble to document pronounced proximity to the trachea without actual attack of it. The patient was “a married woman, aged 46 years, the mother of nineteen children, of whom seven were alive.” The primary tumor was in the thyroid glands. “Isolated (lymph) glands,” he had written, “were much enlarged with encephaloid cancer; there were two of these near the trachea in the lower part of the neck.” In other words, not only positive data but also negative ones stood to be noticed by these memorable masters.

The detailed history of another patient suffering from thyroid malignancy was presented by Semon⁷ Physician for Diseases of the Throat to St. Thomas’s Hospital, London. At autopsy, the thyroid gland, larynx, and trachea were removed as one mass and were shown to the Medico-Chirurgical Society on 13th June, 1893. The spread to the trachea may be fully abstracted because it was dutifully documented as follows: Into the upper part of the trachea there projects a broadly pedunculated slightly lobular process of the tumour 4 cm. in length, and of a diameter so as to completely fill the canal: its surface is smooth and its texture extremely soft. The pedicle of the intra-tracheal process measures in the vertical direction 2cm, and is continuous with the thyroïdal growth through the right and posterior walls of the trachea. The summit or highest border of the growth within the trachea is 5 cm. below the level of the lower border of the cricoid cartilage.

Above this there hangs into the canal, by a slender pedicle, a second smaller tumour, with its stalk that measures 1.5 cm. in length, and appears as a clubbed or pyriform process 7 cm. in extreme breadth. Its exact site of attachment is 1 cm. below the lower edge of

the posterior border of the cricoids cartilage, and it is separated by a distinct interval of normal mucous membrane from the upper limit of the pedicle of the larger growth. The posterior wall of the trachea, for a distance of 3 cm. is bulged forwards by the growth before referred to as lying between this tube and the oesophagus, and it is over this, exactly in the middle line, that the pedicle of the lesser intra-tracheal growth is attached. Immediately on the right of the pedicle is a ragged soft tag of tissue, somewhat larger than it, and suggesting that a third process of the growth has at some time been detached.

During that Meeting, reference was made to a similar published case. The point was made that a metastasis may perforate the trachea and thereafter grow in a pedunculated manner. Such an appearance, it was surmised, “may be explained by the growth meeting with no resistance as soon as it extends into an open tube.” Apparently, such a lesion may slough away and lead to terminal hemorrhage. Is it fortuitous that most of the presented primaries arose in the thyroid gland which is contiguous to the trachea? One answer is clear, namely, that cancers tend to spread to nearer organs. Much as this was often attributed to direct extension rather than to metastatic spread, my recent hypothesis is that they are due to eventual coalescence. In other words, it is discontinuous or metastatic spread that eventually looks like mere spread in continuity.⁸

Conclusion

In sum, there is continuing interest in the surgical management of thyroid cancer infiltrating the trachea.⁹ Actually, the old concepts concerning the important field of head and neck oncology were documented recently.¹⁰ Accordingly, my present efforts constitute further evidence in this interesting field.

Acknowledgments

None.

Conflicts of interest

Author declares that there is no conflict of interest.

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