

• 病例报告 •

术中发​​现气管憩室 2 例病例报告并文献复习

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[摘要] 分析甲状腺肿瘤相关诊疗中气管憩室易漏诊或误诊的原因, 加强对该疾病临床特点的认识。检索国内、外近 20 年相关文献, 分析类似病例中发生误诊、漏诊的原因, 并就解剖学、鉴别诊断、检查方式进一步剖析。同时对近期 2 例在术中发现的气管憩室临床病例与其相关的临床资料进行回顾性分析。气管憩室易与甲状腺肿瘤相混淆, 被误诊的原因如下: 气管憩室在大多数病人中并无症状; 有症状的气管憩室与甲状腺结节也有着类似的临床症状; 许多气管憩室的影像学表现缺乏特征性。普外科医师应提高对气管憩室的认知、提高临床工作的警惕性; 应将颈部 CT 列为甲状腺腺叶切除相关手术术前的常规检查。

关键词: 气管憩室; 甲状腺肿瘤; 甲状腺癌根治术

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Tracheal diverticula discovered during surgery: a report of 2 cases and literature reviewHE Wen¹, GU Jianhua^{2*}, XING Xujian¹, WENG Ziyi¹, FEI Jian³

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[Abstract] To analyze the reasons why tracheal diverticula is easy to be missed or misdiagnosed in the diagnosis and treatment of thyroid tumors, and to strengthen the understanding of the clinical characteristics of the disease. The reasons of the misdiagnosis and missed diagnosis in similar cases were analyzed, and the anatomy, differential diagnosis, and examination methods by reviewing the relevant literature in the past 20 years were further analyzed. At the same time, a retrospective analysis was carried out on two recent clinical cases of tracheal diverticula discovered during surgery. Tracheal diverticula is easily confused with thyroid tumor and may be misdiagnosed for the following reasons: tracheal diverticula is asymptomatic in most patients; symptomatic tracheal diverticula has similar clinical symptoms to thyroid nodules; lack of character in imaging findings. General surgeons should improve their awareness and vigilance of tracheal diverticula. Neck CT should be listed as a routine examination before thyroid-related surgery.

Key words: Tracheal diverticula; Thyroid tumor; Radical thyroidectomy

气管憩室(tracheal diverticula, TD)的发生率为 1%~4%^[1-8], 大多数为偶然发现, 尤其是 CT 等放射线成像检查^[8]。随着螺旋 CT 检查的普遍开展, TD^[9]的检出率不断上升, 日益引起外科医师的重视。现报道笔者近期收治的 2 例甲状腺结节伴 TD 病例, 并对复习文献。

1 病例

1.1 病例 1

病例 1: 女, 59 岁, 因“体检发现甲状腺结节 3 月余”入院。专科体格检查: 双侧甲状腺未及肿大及结节。超声检

查: 左侧甲状腺结节伴钙化(TI-RADS 4A 类); 右侧甲状腺结节伴钙化(TI-RADS 3 类)。颈部超声和细针抽吸活检(fine-needle aspiration/biopsy, FNA/B)检查提示“右甲状腺乳头状癌, 左甲状腺倾向乳头状癌”。术前未常规行颈部增强 CT 检查。术中快速冷冻病理检查确诊双侧甲状腺乳头状癌, 见气管左后方一结节, 外观形似淋巴结、质韧, 予同步清扫后麻醉报警, 发现该结节与气管穿通, 故该病灶考虑为 TD, 立即予 6-0 Prolene 线(聚丙烯不可吸收缝线)修补, 常规留置负压引流管并逐层关闭。术后 1 个月、24 个月复诊无明显气管异常。

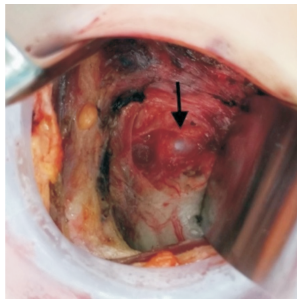
1.2 病例 2

病例 2: 女, 70 岁, 因“体检发现双侧甲状腺结节 2 周”入院。专科体格检查: 双侧甲状腺未及肿大及结节。超声检查: 甲状腺峡部偏右实质性结节伴多发钙化(TI-RADS 4A

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类), 右侧甲状腺实性结节(TI-RADS 3类), 左侧甲状腺多发实性结节, 部分伴钙化(TI-RADS 3类), 双侧甲状旁腺区未见明显异常, 双侧颈部、双侧锁骨上区未见明显肿大淋巴结, 双侧颈部未见明显包块。颈部增强CT报告未见明显异常。FNA/B提示“峡部偏右及左侧甲状腺结节倾向甲状腺乳头状癌”。遂全身麻醉行右侧甲状腺癌改良根治术, 术中清扫右中央区淋巴结时, 见气管右后方表面约1.0 cm×0.5 cm椭圆形结节(见图1), 外观与颈淋巴结相似, 触之略落空感。因笔者有病例1的经验, 遂术中立即阅片(见图2、3)。认为该结节为TD, 考虑到病人并无呛咳、呼吸困难、炎性等既往病史, 遂不予术中处理。术后1个月、6个月复诊无明显气管异常。



The diverticula is identified, exposed (black arrowhead).

图1 TD术中所见

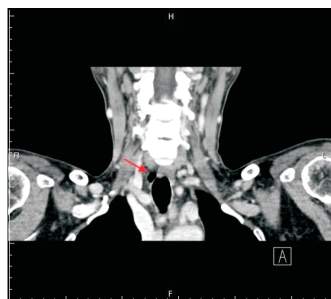
Fig 1 TD Surgical finding



An air-filled cyst (red arrowhead) located in the posterior part of the right thyroid lobe and the right lateral to the trachea, communicating with the trachea.

图2 TD颈部CT矢状面

Fig 2 TD in the sagittal view of the neck CT



An air-filled cyst (red arrowhead) located in the posterior part of the right thyroid lobe and the right lateral to the trachea, communicating with the trachea.

图3 TD颈部CT冠状面

Fig 3 TD in the coronal view of the neck CT

2 讨论

2.1 病例来源

以“气管憩室”“甲状腺肿瘤”“甲状腺结节”“手术”“影像学”为关键词在中国知网、万方、MEDLINE、Web of Science、New Engl J、Elsevier ScienceDirect、Springer等数据库上检索近20年相关病例报道, 同时排除外伤因素、肿瘤因素、心肺疾病因素引起的TD病例, 符合上述条件有10例(见表1)。

2.2 文献病例资料分析

上述文献中的10例, 最大发现年龄76岁, 男4例, 女6例。TD的个案报道绝大多数来自国外学者。10例中仅1例幸免于误诊、漏诊; 发现方式均较偶然, 分别来自CT检查(7例)、MRI检查(1例)、气管镜(1例)、术中(1例)。值得注意的是, 尽管这10例最终都转诊或会诊于外科, 但仅5例是首诊来自外科^[10-11, 13, 15, 17], 其他因发热、呼吸困难、咯血、咽痛、咳嗽等症状首诊于内科。

2.3 解剖学分析

TD是一种源于气管的良性病变, 由多种原因致局部气管薄弱, 经气管后壁肌层或软骨间向外突出, 形成不规则的囊状空腔。复习近20年国、内外关于TD的文献, 绝大多数于胸部或颈部CT检查中发现。大多数研究提示女性发病率较高^[3, 19-21], 且检出年龄常见于50~60岁^[3, 7, 19, 22]。憩室在轴向面1~30 mm, 垂直面5~25 mm^[8, 23-24]。长径在2~6 mm的为较小TD, 约97%为单发, 可发生于气管膜部、气管膜部软骨部交界处和气管软骨部^[16]。仅1.3%为多发^[4]。水平位上, T₁~T₃椎骨之间的胸椎入口水平, 即声带下方或隆突上方4~5 cm^[2, 4, 8, 16]。赵亚春等^[25]CT检查发现的气管小憩室中, 除1例位于气管分叉处以上, 其余80例小憩室均位于胸廓入口处。TD常出现在右后外侧, 这也许与胸廓入口处的解剖学结构相关^[8]。食管和主动脉相对于气管产生来自左后外侧的支撑力, 而支撑力在气管右后外侧相对较弱^[1, 4, 6, 26-27]。

2.4 其他鉴别诊断

复习文献时发现“咽食管憩室”也与甲状腺外科疾病关系密切, 且咽食管憩室比TD更易误诊为甲状腺结节。食管憩室常向左侧凸出^[9, 28-29], 其中向侧面凸出的为Killian-Jamieson憩室, 向后面凸出的为Zenker憩室, 其易被误诊或漏诊的原因类似TD。食管憩室的个案报道共8例, 主要来自国内学者^[30-35]。与TD不同的是, 其几乎来自与甲状腺相关的诊疗学科, 且病人几乎无相关不适主诉。值得注意的是, 仅2例国外偶然发现的食管憩室, 均为甲状腺切除术后随访, 在¹³¹I检查中偶然发现^[36], 且都误诊为“肿瘤转移”。Rashid等^[36]发现病人饮水后显影大部分消散, 因此考虑为Zenker憩室(咽食管憩室)。其他罕见的鉴别诊断还包括化脓性甲状腺炎、肺尖疝、纵膈气肿、气管支气管巨大症等^[4-5]。

2.5 检查手段

尽管并非所有TD都能通过影像学手段检出, 但笔者认为薄层CT影像、多平面3D重建仍是首选的检查手段。TD在CT图像上以气管旁区域的空气或黏液填充囊的方式存

表 1 颈-上胸部病灶为 TD 的病例报道及特征

Tab 1 Case reports and characteristics of tracheal diverticula lesions in the neck and upper thorax

Author	Age(year)/sex	Location	Size(mm)	Symptoms	Primary diagnosed	Actual diagnosis	Discovered ways	Treatments	Adverse events	Follow-up
Kim, et al ^[10] 2021	68/F	On the right side of the trachea at the level of the thoracic inlet	21×19	Protruding neck mass causing neck swelling, neck discomfort, and sore throat	TD	TD	CT scan and histopathological examination	Aspirate to reduce volume by 21-gauge syringe needle; the mass was excised	None	There were no postoperative complications after 6 months
Wang et al ^[11] , 2020	47/M	Right posterior carina	2	None	NA	TD	Tracheal inspection and CT scan before thoraco-scopic lobectomy	The operation was suspended for follow-up observation with anti-inflammatory treatment	NA	A month later, there was no significant change in chest CT as compared with the past one month
Sun, et al ^[12] 2019	49/F	Right posterior side of the trachea	18×10×3	Pain in the right neck with fever	Inflammation	TD	MRI examination after ineffective anti-inflammatory treatment	Surgical resection	None	Disappearance of clinical symptoms
Zhang, et al ^[13] 2019	61/F	Right posterior side of the trachea	13×11	Shortness of breath, and intermittent stabbing pain in the right supraclavicular fossa	Thyroid nodules	TD	FNA,CT and X-rays with barium	NA	None	NA
Ellis, et al ^[14] 2019	20s/M	Right posterior side of the trachea	43×18	Night sweats and dyspnoeic	lymphoma	TD	CT scan of the chest and fibre-optic bronchoscopy.	Surgical resection	None	NA
Toscano, et al ^[5] 2019	26/M	Right posterior side of the trachea	15	Recurrent respiratory tract infections and repeated episodes of haemoptysis during asthma treatment	Complications of asthma	TD	CT scan and intraoperative exploration	Surgical resection	72 hours after surgery with minor dysphonia	Two months after surgery, the patient was asymptomatic
Tanaka, et al ^[15] 2018	76/M	Right posterolateral region of the trachea, between the right cervical paraesophageal lymph nodes and the right RLN lymph nodes	10	None	Lung bullae and an esophageal diverticula	TD	An esophageal diverticula was ruled out by esophagography, and lung bullae were ruled out by CT. The tracheal diverticula could be observed through the cervical incision during thoracoscopic esophagectomy	Follow-up	NA	NA
Lin, et al ^[16] 2014	44/M	Right posterior side of the trachea	3	Repeatedly coughing with white phlegm	Inflammation	TD	H-RCT scan and the tracheal reconstruction after ineffective anti-inflammatory treatment	Surgical resection	Delay	NA
Lasker, et al ^[17] 2016	60/F	Right posterior side of the trachea	20×18×15	None	NA	TD	Surgical finding	Surgical resection	None	NA
Xing, et al ^[18] 2003	40/F	Right posterior side of the trachea	10×10	Chest tightness, dry cough, painless swelling in the neck	Tuberculosis	TD	CT scan and fibre-optic bronchoscopy after anti-tuberculosis treatment	Anti-inflammatory treatment	Delay	NA

NA: not available; F: female; M: male; H-RCT: high-resolution computed tomography

在,且可对憩室的大小、数量、位置、内容物以及其壁的轮廓和厚度、与气管连接的紧密程度进一步分析^[37],甚至区分先天性和获得性 TD^[4, 8, 16]。支气管镜检查可明确憩室是否与气管相通,或发现开口太窄、影像学无法检测到的病例^[37]。另外,钡剂造影、纤维食管镜检查有助于鉴别诊断^[1, 4]。

2.6 误诊、漏诊原因分析

2.6.1 主观因素

外科医师应养成术前主动阅片的习惯,不应仅参考 CT 报告中的诊断结论。第二次术中选择不特殊处理,除第一次的视觉经验外,还有其他考量,因囊灶触之有“按压乒乓球面感”,且此处为气管插管的气囊平面下,鼓气造成该囊灶更显胀大、充实感,再结合病人术前无呼吸道不适主诉,考虑该较小的 TD 在常态下应为“无病生存”状态,故选

择随访更佳。多数病人在随访期间 TD 的大小、形状及位置无明显变化^[8, 38]。

2.6.2 客观因素

TD 易与甲状腺肿物相混淆^[8],被误诊的原因可能有三。第一,TD 大多无症状,有不适就诊后才无意发现。这些不适表现为慢性咳嗽、呼吸不畅^[13]、右锁骨上间歇痛^[13]、喘鸣或反复发作的气管支气管炎,常于内科治疗。若出现反复呃逆^[39]、吞咽困难^[15]、吞咽痛、气管旁脓肿、呼吸困难^[13, 40]、窒息症状、咯血^[41],于进一步影像学检查后才被诊断。第二,有症状的 TD 与甲状腺结节有着类似的临床症状,TD 在超声下常表现为“甲状腺结节包膜”“甲状腺腺瘤伴钙化”等假象,如压迫迷走神经可致迷走神经刺激,压迫喉返神经亦可见声嘶,对 TD 的诊断特异度不高。第三,并非所有的 TD 都

能通过影像学手段观察到。Buterbaugh等^[23] CT扫描显示, 26例TD病人中, 仅9例(34.6%)观察到气管与憩室之间直接相通。TD的超声表现也缺乏特征性, 如TD合并软组织增生或炎性渗出物, 会造成气体含量显著减少, 故声像图表现为类似富含散在钙化灶的实性结节^[13], 加之毗邻甲状腺腺体, 增加了误诊风险。

3 结语

本文意在强调, 凡是甲状腺结节拟手术治疗, 必先确定其真实来源。如B超检查提示甲状腺右叶下极近气管处见低回声结节, 且内见气体样强回声, 应考虑TD。颈部CT应作为常规术前检查^[42], 尤其是针对甲状腺肿瘤疑癌、FNA/B确诊癌、疑似胸骨后延伸、肿瘤固定(局部浸润伴或不伴声带麻痹)等的病例。若发现TD, 应在影像报告中提及。重要的是术前想到气管或食管憩室的存在, 必要时组织医学影像科、胸外科、呼吸内科、内镜科等相关学科行多学科会诊。绝大多数无症状且与甲状腺毗邻的TD均较小, 未达手术指征。有些TD与右喉返神经淋巴结区域关系密切, 胸腔镜手术有优势^[15], 因其能在不损伤TD的情况下观察显微解剖。但普外科医师仍应尽可能在术前将病例的可能情况了然于心, 以减少误诊、漏诊。

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