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·临床研究·

多学科诊疗模式治疗颌面颈部巨大神经纤维瘤的临床分析

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【摘要】 目的 探讨颌面颈部巨大神经纤维瘤的多学科诊疗模式，为临床提供参考。**方法** 由口腔颌面外科主诊，麻醉科、ICU、血管外科、胸外科等多学科参与、共同制定治疗方案的2例颌面颈部巨大神经纤维瘤患者实施围术期全程管理的流程进行回顾性分析。**结果** 2例患者的多学科治疗过程（麻醉-栓塞-协同手术-ICU复苏-术后管理）均按术前计划顺利实施，术中未出现多学科风险评估未预测到的不良事件或意外，均完成手术治疗，且未发生严重并发症。2例术后病理报告均为神经纤维瘤，患者伤口均I期愈合。**结论** 多学科诊疗模式可在颌面颈部巨大神经纤维瘤的诊治中发挥积极作用，患者可以得到安全、有效的诊治。

【关键词】 面颈部；神经纤维瘤；多学科诊疗模式；麻醉；动脉监测；静脉监测；数字减影血管造影
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Clinical analysis of multi-disciplinary team management in the treatment of giant neurofibroma in maxillofacial and neck region

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【Abstract】 Objective To investigate the multi-disciplinary team (MDT) management in the treatment of giant neurofibroma in maxillofacial and neck region, to provide reference for clinical practice. **Methods** Retrospective analysis was conducted on the perioperative whole-process management process of 2 cases of giant neurofibroma in maxillofacial and neck region jointly formulated treatment plan by oral and maxillofacial surgery department with the assistance of the department of anesthesiology, ICU, vascular surgery, thoracic surgery, etc. **Results** MDT treatment process (anesthesia-embolization-collaborative surgery-ICU-post-operative management) of the two patients was smoothly conducted according to the pre-operative plan. There were no adverse events or accidents that were not predicted by the risk assessment from multiple teams during the operation, and no serious complications occurred after the operation. The post-operative pathological report of both cases was "neurofibroma". Wounds in both patients healed in stage I. The course of treatment was smooth, and the surgical treatment was completed without serious complications. **Conclusion** MDT management can play a positive role in the diagnosis and treatment of giant maxillofacial and neck neurofibroma so that patients can obtain safer and more effective diagnosis and treatment.

【Key words】 maxillofacial and neck region; neurofibroma; multi-disciplinary team; anesthesia; arterial moni-

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toring;　venous monitoring;　digital subtraction angiography
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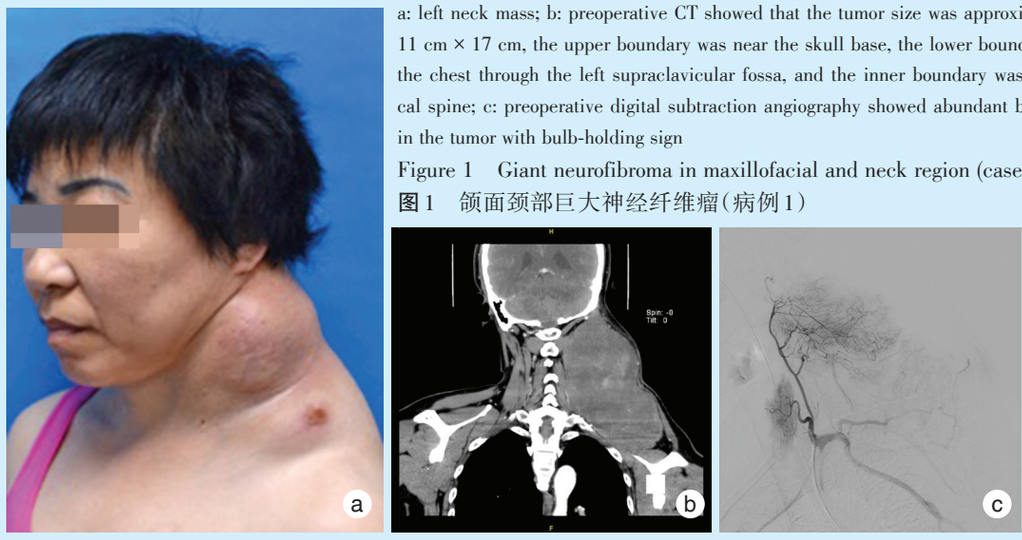
发生于颌面颈部的巨大神经纤维瘤常常累及颅底、颈鞘、胸腔、气管颈段，肿瘤血运丰富，手术风险极高[1-2]。术中可能因为瘤体不可控性出血或大血管破裂直接致死；也可能因为气管移位、塌陷、堵塞造成严重呼吸障碍、甚至窒息；还可能因为损伤颈椎、胸腔、颅底重要结构严重致残[3-4]。此类患者分散就诊口腔颌面外科、头颈肿瘤科、整形科等，但任何一个科室都难以独立完成全程治疗，采用多学科诊疗模式（multi-disciplinary team，MDT）是目前提倡的疑难重症疾病管理方式[5]，但目前尚无规范的诊疗流程。本文结合2例采用MDT模式成功治疗的颌面颈部巨大实体神经纤维瘤案例，探讨其诊断治疗流程、手术协作方案及重点风险防控，以期为临床所借鉴。

1　资料和方法

1.1　病例报告

病例1，患者女性，52岁；左颈部缓慢生长23年，由蚕豆大小变为鸡蛋大小；3年前于外院手术切除，由于出血凶猛（切开皮肤，出血便达300 mL），取活检后随即终止手术；术后病理诊断：神经纤维瘤。术后肿瘤快速生长，逐渐蔓延至全颈（图1a），并出现瘤区疼痛，皮肤破溃，声音嘶哑，左臂麻木且不能上抬，不能平卧睡眠，被动体位呼吸；CT显示：肿瘤大小13 cm × 11 cm × 17 cm，上界近颅底，下界穿过左侧锁骨上窝延伸至胸腔，内界临近颈椎，颈鞘受压移位，累及臂丛和肩关节，数字减影血管造影（digital subtraction angiography，DSA）显示瘤体血运丰富，呈抱球征（图1b、1c）。



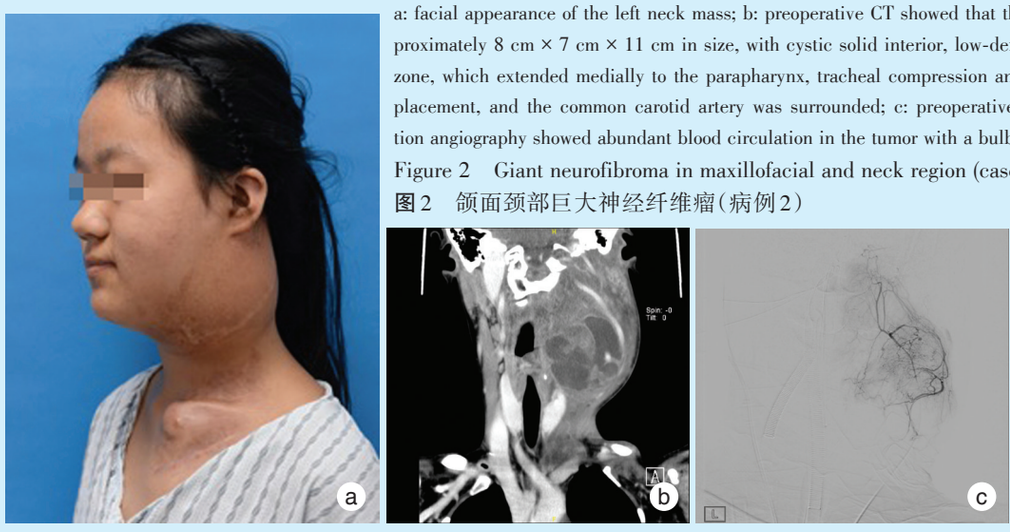
a: left neck mass; b: preoperative CT showed that the tumor size was approximately 13 cm × 11 cm × 17 cm, the upper boundary was near the skull base, the lower boundary extended to the chest through the left supraclavicular fossa, and the inner boundary was near the cervical spine; c: preoperative digital subtraction angiography showed abundant blood circulation in the tumor with bulb-holding sign

Figure 1　Giant neurofibroma in maxillofacial and neck region (case 1)
图1　颌面颈部巨大神经纤维瘤（病例1）

病例2，患者女性，14岁；出生时即发现左下颈部肿块，持续缓慢生长至拳头大小；3年前于外院行手术治疗，切开后因无法控制创面出血，即刻关闭伤口并加压包扎；后改行放疗，但效果不佳，肿物继续增大，并出现体位性头晕、声音嘶哑，睡觉时打鼾；临床检查：肿瘤位于左颈上2/3，质软、界不清、基底固定（图2a）。临床诊断：左颈部神经纤维瘤。CT显示：肿瘤大小约8 cm × 7 cm × 11 cm，内部呈囊实性，可见低密度液化区，向内侧延伸至咽旁，气管受压右侧移位，颈总动脉被包绕。DSA显示瘤体血运丰富，呈抱球征（图2b、2c）。

1.2　多学科联合会诊

口腔颌面外科为患者的主诊科室，根据病情



a: facial appearance of the left neck mass; b: preoperative CT showed that the tumor was approximately 8 cm × 7 cm × 11 cm in size, with cystic solid interior, low-density liquefaction zone, which extended medially to the parapharynx, tracheal compression and right-side displacement, and the common carotid artery was surrounded; c: preoperative digital subtraction angiography showed abundant blood circulation in the tumor with a bulb-holding sign

Figure 2　Giant neurofibroma in maxillofacial and neck region (case 2)

图2　颌面颈部巨大神经纤维瘤(病例2)

特征和拟定的手术方案,由医务部组织麻醉科、重症医学科、介入血管科、神经外科、胸外科、耳鼻喉科、睡眠呼吸科等7个学科参与,通过多学科联合会诊,对手术治疗进行风险评估和技术准备,并制定治疗方案和应急预案。

1.2.1　风险评估　2例患者经术前评估,均无特殊全身情况及既往系统性疾病病史,美国麻醉医师协会(ASA)分级为Ⅰ级,麻醉风险在于困难体位插管和短时大量失血导致循环不稳定、甚至休克;手术风险在于颈动脉和锁骨下动脉破裂,分离颈总动脉周围组织时颈动脉窦受刺激引起的血压波动;手术创面不可控制性出血,迷走神经和臂丛神经损伤,气胸和肺不张;术后严重并发症:气管插管长期滞留、术后感染创面经久不愈、术后创面渗血引起血肿、神经损伤相应功能障碍。

1.2.2　治疗方案　肿瘤供血超选择栓塞术与手术同期顺序进行,以便最有效和最大程度地减少手术出血;考虑到肿瘤性质为良性,肿瘤体积巨大整体切除困难,某些致命的和重要的解剖结构邻接肿瘤或被肿瘤包绕,手术方式拟定为分块切除肿瘤、关键结构解剖保护、致命部位允许肿瘤残余的方法;颅底和致命血管旁残余瘤体在术后1个月时做近距离放射补充治疗。

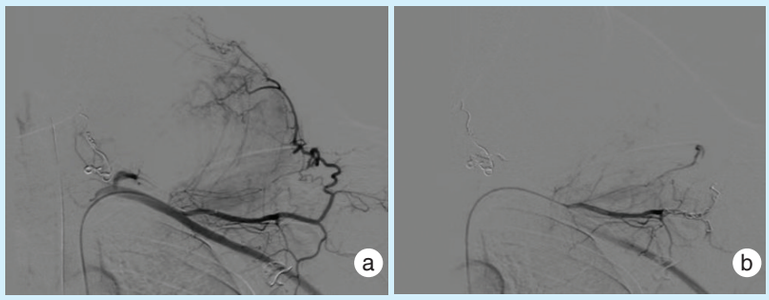
1.2.3　多学科保障和应急预案　麻醉科启动困难气道管理方案、建立有创动脉监测及中心静脉监测、术中采用控制性降压减少术野出血、视情况采取急性等容血液稀释,2例患者术前分别备血2 000 mL和1 000 mL;血管外科备动脉内放置球囊紧急止血方案、备人工血管颈内动脉重建;2例病例分别在术前对患者做了心理辅导和法律援助。

1.3　外科治疗过程

由于颈部肿物巨大,无法耐受平卧位,2例患者均于特殊体位状态(半坐位)采用纤维支气管镜引导下清醒经口安全插管、麻醉,并在手术全程按照手术医生要求实施控制性降压。

由介入血管外科行双侧颈外动脉及颈内动脉DSA以明确病变范围、供血动脉,观察动脉走形和血运分别特点;然后将血管导管选择性插入瘤体的动脉供血分支,再次造影以确定拟阻断的血供区,随即行超选择栓塞术,栓塞材料为:弹簧圈(MWCE-18S-4/2-TORNADO,库克,美国),PVA(PVA-300,库克,美国),明胶海绵颗粒(Gelfoam1000,艾力康,中国)。栓塞后再次造影复查,显示供血动脉主干完全闭塞,病变区无染色时,即完成栓塞术(图3)。

血管栓塞术后,保持全麻状态,于健侧颈内静脉和左侧下肢静脉行中心静脉置管,然后调整体位,常规消毒术区、铺单。病例1的肿瘤巨大,有包膜;手术首先沿包膜分离前颈部瘤体,术中见肿瘤未侵蚀颈鞘,颈总动脉、颈内静脉和迷走神经得以完好保留,后颈部邻接颈椎旁的肿瘤在骨科医师的指导下安全分离,未伤及臂丛;锁骨下部分由胸外科医师在未离断锁骨的情况下从底部安全分离,未伤及锁骨下动静脉和胸肺;与神经外科医师联合探查颞下凹和颅底,紧贴包膜分离肿瘤,肿瘤

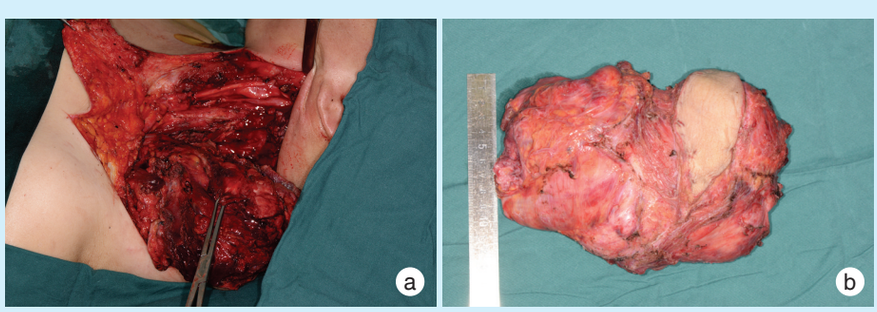


a: angiography showed that the tumor had abundant blood circulation and was spherical in shape; b: after the supplying artery was selected and embolized with gelatin sponge particles and spring coil, angiography showed that the blood flow stagnated

Figure 3　Preoperative angiography and post-embolization images of patient with giant neurofibroma in maxillofacial and neck region (case 1)

图3　颌面颈部巨大神经纤维瘤患者术前血管造影及栓塞后影像(病例1)

包膜完整,剖面以实性为主,间有局部囊性变,肿瘤组织呈灰白色、质地坚韧,创面可以电凝和压迫止血,肿瘤内部的血管未侵蚀允许结扎止血,从颅底完整下标本(图4)。



a: intraoperative field was clear and the tumor tissue was removed; b: the tumor was solid

Figure 4　Surgical situation of patient with giant neurofibroma in maxillofacial and neck region (case 1)

图4　颌面颈部巨大神经纤维瘤患者手术情况(病例1)

病例2的肿瘤主体位于颈部中上份和颅底,包膜不完整,术中发现肿瘤侵蚀颈鞘,且与颅底粘连,肿瘤包膜不完整,剖面囊实各半,肿瘤组织灰黄间有内出血,质地较脆但并非胶冻状,仍可以通过电凝和压迫止血,肿瘤内的血管受侵蚀,难以牢固结扎,手术分块切除肿瘤,为确保手术安全,在颈总动脉、颈内静脉壁上和颅底残留少量肿瘤组织(图5)。2例关闭伤口后,均术后预防性行气管切开术。2个病例术中出血分别为1 000 mL和600 mL。

2　结　果

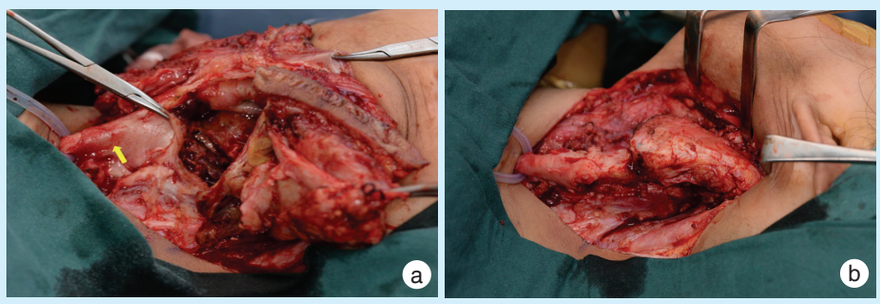
经术前术后心理辅导,患者术前术后情绪稳定,麻醉苏醒和ICU恢复阶段依从性好。患者家属对手术风险和最严重的不良后果理解充分,对术中和术后改变的手术方案和临时采取的应急措施能积极配合,整个治疗过程未发生任何来自患方的障碍。

2例术后病理报告均为“神经纤维瘤”。

整个治疗过程(麻醉-栓塞-协同手术-ICU复苏-术后管理)均按术前计划顺利实施,术中没有出现风险评估未预测到的不良事件或意外,术后也未发生严重并发症。2例患者的伤口均I期愈合(图6)。

3　讨　论

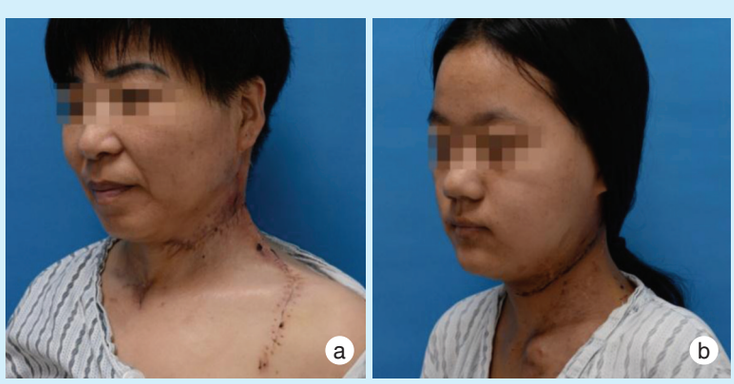
神经纤维瘤为常染色体显性遗传疾病,组织成份以神经鞘细胞及纤维母细胞为主,属于良性



a: the tumor eroded the cervical sheath (as the arrow indicated) , and the tumor was removed in sections; b: a small amount of tumor tissue remained on the wall of common carotid artery and internal carotid artery and skull base

Figure 5　Surgical situation of patient with giant neurofibroma in maxillofacial and neck region (case 2)

图5　颌面颈部巨大神经纤维瘤患者手术情况(病例2)



a: case 1; b: case 2; the wounds of 2 patients were all healed at first stage

Figure 6　Images of patients with giant neurofibroma in maxillofacial and neck region 2 weeks after surgery (case 1 & case 2)

图6　颌面颈部巨大神经纤维瘤患者术后2周照片(病例1、病例2)

肿瘤。面颈部神经纤维瘤一般来自三叉神经或颈丛皮神经,背部皮肤多发褐色斑。瘤结节可以单发,呈实体型,质韧,内部血窦少纤维组织较多;瘤结节也可以多发,呈念珠状或丛状,组织增生松弛、下垂,质软,内含血窦和胶冻状瘤组织[6-7]。临床上,通常将后一种类型理解为神经纤维瘤病。美国1987年公布的诊断标准将两类都归为神经纤维瘤病,只是根据是否伴发听神经瘤分为Ⅰ型和Ⅱ型[8-10]。

本文报告的2例巨大神经纤维瘤,其共同特点是:生长缓慢、病程长、持续多年无症状,经手术刺激后,短期快速增大,并出现呼吸障碍和神经损害症状;肿瘤血运丰富,第一次手术均因出血难以控制而被迫终止;患者转辗多家大医院求治,均以费用高、风险大、手术失败率高、可能导致死亡等理由而婉拒,患者及家属心理压力极大,最后就诊时处于"在希望中求生存"的最低预期状态。术前心理辅导非常有助于患者的心理稳定,在医生对风险充分告知的前提下,进一步法律援助也非常有助于家属对问题的理解,这对整个治疗是极其有益的。

多学科联合诊治可以实现各专业交叉点的连接,便于从不同角度对手术风险进行全面评估并共同制定治疗计划[5,11]。制定手术计划主要涉及手术切除范围、术中风险防控和多学科分阶段治疗几方面。首先要明确手术切除范围,需权衡病变产生的畸形和功能障碍与手术可能引起的并发症两者间的利弊。然后确定各学科的风险防控准备工作以及治疗顺序[12]。

面颈部的巨大肿瘤严重影响外形及功能,甚至可能发生恶变,外科手术是唯一有效的治疗方式。但外科切除是风险极大的手术,头面部血供丰富,尽管术中结扎颈外动脉并缝扎瘤体组织,出血量仍较大;而为保存重要解剖结构,术中剖开瘤体,瘤体内有巨大血窦,常因无法止血而失血大量,甚至无法完成手术[13]。对于手术范围,有研究

证实，病变切除超过90%，残留病变再度生长率小于40%；而不足90%的再生长率大于60%[14]。巨大肿瘤多累及多部位和重要结构，如颅底、颈鞘、臂丛神经、颈椎等，稍有不慎就可能引起严重并发症，故手术应在保存重要结构的条件下，尽可能地多切除肿瘤或分次切除肿瘤，手术目的为改善功能及面容，但不能完全根治肿瘤[15]。

最大的手术风险在于术中出血，术前DSA可有效评估瘤体血运情况[16]，而术前栓塞是解决术中止血困难的安全、有效方法，头面颈部血运丰富，侧支循环繁杂，超选择栓塞术更有利于栓塞肿瘤供血细小动脉、减少移位栓塞的发生几率，超选择栓塞术后不间断的即刻手术可以有效减少出血量，使肿瘤瘤体变得“贫血”，使手术变得干净，间接地有助于降低手术副损伤，也便于最大程度地切除肿瘤[16]。本文报告的2例患者动脉造影显示肿瘤血运丰富，但分布不均匀，供血主要来自颈外动脉分支及新生血管，超选择栓塞术后即刻进行手术，瘤体内出血较术前估计明显减少，术野相对“干净”。

放疗对神经纤维瘤的治疗作用仍不清楚，但可作为术后的辅助手段，对于无法切除的瘤体或可尝试[17]。本研究将继续对2例患者进行随访及疗效评估。

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参考文献

[1] Tsang SH, Sharma T. Neurofibromatosis[J]. Adv Exp Med Biol, 2018, 1085: 209-211. doi: 10.1007/978-3-319-95046-4_44.

[2] Mukherji MM. Giant neurofibroma of the head and neck[J]. Plast Reconstr Surg, 1974, 53(2): 184-189. doi: 10.1097/00006534-197402000-00010.

[3] Ronsley R, Hounjet CD, Cheng S, et al. Trametinib therapy for children with neurofibromatosis type 1 and life-threatening plexiform neurofibroma or treatment-refractory low-grade glioma[J]. Cancer Med, 2021, 10(11): 3556-3564. doi: 10.1002/cam4.3910.

[4] Bingham HG. Plexiform neurofibroma of the head and neck[J]. Am J Surg, 1979, 138(4): 517-520. doi: 10.1016/0002-9610(79)90411-2.

[5] 李艳珍, 刘雨薇, 王生才, 等. 儿童头颈部神经源性肿瘤临床分析[J]. 临床耳鼻咽喉头颈外科杂志, 2019, 33(10): 983-986. doi: 10.13201/j.issn.1001-1781.2019.10.020.
Li YZ, Liu YW, Wang SC, et al. Clinical analysis of head and neck neurogenic tumor in childhood[J]. Lin Chung Er Bi Yan Hou-Tou Jing Wai Ke Za Zhi, 2019, 33(10): 983-986. doi: 10.13201/j.issn.1001-1781.2019.10.020.

[6] Nallanchakrava S, Mallela MK, Jeenepalli V, et al. A rare case report of neurofibromatosis type 1 in a 12-year-old child: a 15-month follow-up[J]. J Oral Maxillofac Pathol, 2020, 24(Suppl 1): S106-S109. doi: 10.4103/jomfp.JOMFP_35_20.

[7] Touzé R, Manassero A, Bremond-Gignac D, et al. Long-term follow-up of choroidal abnormalities in children with neurofibromatosis type 1[J]. Clin Exp Ophthalmol, 2021. doi: 10.1111/ceo.13936.

[8] De Oliveira RL, Fontenele RC, Devito KL, et al. Evaluation of the dimensions, morphology, and position of the mandibular condyles in individuals with neurofibromatosis 1: a case-control study[J]. Clin Oral Investig, 2021. doi: 10.1007/s00784-021-03985-7.

[9] Tam LT, Ng NN, Mckenna ES, et al. Effects of age on white matter microstructure in children with neurofibromatosis type 1[J]. J Child Neurol, 2021: 8830738211008736. doi: 10.1177/088307382 11008736.

[10] Dhaenens BE, Ferner RE, Bakker A, et al. Identifying challenges in neurofibromatosis: a modified Delphi procedure[J]. Eur J Hum Genet, 2021. doi: 10.1038/s41431-021-00892-z.

[11] Bethany C, Kenneth C. Neurofibroma of the hard palate[J]. BMJ Case Rep, 2021, 14: e239887. doi: 10.1136/bcr-2020-239887.

[12] Valdivia AR, Gandarias C. Neck swelling in a type 1 neurofibromatosis patient[J]. Eur J Vasc Endovasc Surg, 2019, 58: 414. doi: 10.1016/j.ejvs.2019.03.015.

[13] Ahmedou AB, Mohamed AM, Youssef O, et al. A rare cause of cervical swelling: solitary plexiform neurofibroma[J]. Ann Med Surg (Lond), 2021, 64: 102225. doi: 10.1016/j.amsu.2021.102225.

[14] Buono FD, Sprong ME, Paul E, et al. The mediating effects of quality of life, depression, and generalized anxiety on perceived barriers to employment success for people diagnosed with neurofibromatosis type 1[J]. Orphanet J Rare Dis, 2021, 16(1): 234. doi: 10.1186/s13023-021-01866-6.

[15] Ehara Y, Koga M, Imafuku S, et al. Distribution of diffuse plexiform neurofibroma on the body surface in patients with neurofibromatosis 1[J]. J Dermatol, 2020, 47(2): 190-192. doi: 10.1111/1346-8138.15194.

[16] Boumaza K, Michel G, Salaud C, et al. Peripheral neck nerve tumor: a 73-case study and literature review[J]. Eur Ann Otorhinolaryngol Head Neck Dis, 2019, 136(6): 455-460. doi: 10.1016/j.anorl.2019.09.005.

[17] Waqar-Uddin W, Ahmad F, Khawar A. Recurrent neurofibroma in the head and neck[J]. J Coll Physicians Surg Pak, 2007, 17(10): 629-631. doi: 10.2007/JCPSP.629631.

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