

## 口腔外科专题

## 过敏相关阻塞性腮腺炎的临床分析及超声研究

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**[摘要]** **目的**·探究过敏相关阻塞性腮腺炎(allergy-related obstructive parotitis, AROP)的临床特点及其导管的超声特征。**方法**·纳入2020年10月—2022年10月因腮腺反复肿胀于上海交通大学医学院附属第九人民医院口腔外科就诊并诊断为AROP的患者, 回顾性分析患者的临床资料, 包括病史、临床表现、实验室检查和影像学检查等。采用静态超声显示AROP导管的形态特征, 通过超声图像测量导管扩张最宽处的内径并进行导管扩张程度分级。采用动态超声显示AROP患者在功能状态下导管的形态变化, 计算导管增宽的数值及比例, 并记录是否出现腮腺肿胀症状。**结果**·37例患者诊断为AROP并纳入研究, 男性9例(24.3%), 女性28例(75.7%)。临床症状以腮腺反复肿胀、皮肤瘙痒以及导管排出黏液栓子为主。32例患者(86.5%)伴有全身过敏病史。血清IgE浓度和外周嗜酸性粒细胞(peripheral blood eosinophil, PBE)绝对计数升高的比例分别为59.5%和43.2%。37例AROP患者的静态超声结果以导管扩张为主要表现。导管扩张程度分级结果分别是轻度21例(56.8%)、中度10例(27.0%)、重度6例(16.2%)。7例AROP患者行动态超声检查, 结果其中4例处于非症状期, 3例处于症状期。**结论**·AROP是一种与过敏反应密切相关的慢性阻塞性腮腺炎, 对于其诊断应从多方面综合考虑。超声能有效显示腮腺导管的形态特征, 并能用于评估导管的阻塞状态, 有助于AROP的诊断和随访。

**[关键词]** 过敏相关阻塞性腮腺炎; 过敏反应; 超声; 导管扩张

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## Clinical analysis and ultrasound study of allergy-related obstructive parotitis

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**[Abstract]** **Objective**·To explore the clinical features of allergy-related obstructive parotitis (AROP) and the ultrasonic characteristics of its duct. **Methods**·Patients diagnosed with AROP at the Oral Surgery Department of Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine from October 2020 to October 2022 due to recurrent swelling of parotid gland were included. Clinical data of the patients were retrospectively analyzed, including medical history, clinical manifestations, laboratory examinations and imaging examinations. Static ultrasound was used to display the morphological characteristics of the AROP duct, ultrasonic images were used to measure the inner diameter at the widest point of duct dilation, and the degree of duct dilation was graded. Dynamic ultrasound was used to show the morphological changes of the duct at the functional state of AROP patients. The value and ratio of duct widening were calculated, and the symptoms of parotid swelling were recorded. **Results**·Thirty-seven patients were diagnosed with AROP and included in the study, including 9 males (24.3%) and 28 females (75.7%). The main clinical symptoms were recurrent swelling of parotid gland, skin itching and duct discharge of mucus plug. Thirty-two patients (86.5%) had a history of systemic allergic disease. The proportion of increased serum IgE concentration and peripheral blood eosinophil (PBE) absolute count was 59.5% and 43.2%, respectively. The static ultrasound results of 37 AROP patients were mainly manifested by duct dilation. The grading results of duct dilation degree were mild in 21 cases (56.8%), moderate in 10 cases (27.0%) and severe in 6 cases (16.2%). Seven patients with AROP underwent dynamic ultrasonography.

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Results showed that 4 patients were in the asymptomatic period and 3 patients were in the symptomatic period. **Conclusion**·AROP is a type of chronic obstructive parotitis closely related to allergic reactions, and its diagnosis should be considered in many aspects. Ultrasound can effectively display the morphological characteristics of parotid duct, and can be used to assess the obstruction status of the duct, which is helpful for the diagnosis and follow-up of AROP.

**[Key words]** allergy-related obstructive parotitis (AROP); allergic reaction; ultrasound; duct dilation

慢性阻塞性腮腺炎(chronic obstructive parotitis, COP)是一类常见的唾液腺疾病,表现为反复发作的腮腺肿胀,常与进食相关。COP常见的病因包括腮腺导管口狭窄、腮腺导管结石或其他异物导致导管阻塞以及<sup>131</sup>I放射治疗等<sup>[1-2]</sup>。有一类临床上新近认识并逐渐得到重视的慢性腮腺疾病,其临床特点主要表现为反复发作的腮腺肿胀、导管口排出黏液栓子以及受累腺体表面皮肤出现瘙痒等<sup>[3]</sup>。此类疾病具有与COP相似的临床表现,同时鉴于过敏反应与此类疾病的发生发展密切相关<sup>[3]</sup>,故本研究将此类疾病称为过敏相关阻塞性腮腺炎(allergy-related obstructive parotitis, AROP)。1879年以来,学者对此类疾病陆续命名,包括纤维蛋白性唾液腺导管炎(sialodochitis fibrinosa)<sup>[4]</sup>、过敏性腮腺炎(allergic parotitis)<sup>[5]</sup>、嗜酸性唾液腺导管炎(eosinophilic sialodochitis)<sup>[6]</sup>、过敏相关性唾液腺导管炎(allergy-related sialodochitis)<sup>[7]</sup>等。AROP的研究目前仍存在发病机制未明确、诊断标准不统一、尚无系统的治疗方案等问题。本研究通过回顾性分析AROP患者的临床资料和超声表现,探究其临床特点和导管的超声特征,以期对疾病的诊断和随访提供依据。

## 1 对象与方法

### 1.1 研究对象

纳入2020年10月—2022年10月因腮腺反复肿胀于上海交通大学医学院附属第九人民医院口腔外科就诊并诊断为AROP的患者。纳入标准:①至少一侧腮腺出现反复肿胀3个月以上。②影像学检查显示受累腮腺主导管扩张或狭窄。③受累腮腺导管排出过黏液栓子。④伴局部腮腺区皮肤瘙痒或者全身过敏性疾病史。⑤实验室检查提示血清IgE浓度或外周血嗜酸性细胞(peripheral blood eosinophil, PBE)绝对计数升高。满足纳入标准①+②,且满足纳入标准③、④、⑤中任意2条及以上者,均诊断为AROP并

纳入研究。排除标准:①由于导管口损伤、瘢痕形成引起的COP。②由于导管结石或其他异物引起的COP。③<sup>131</sup>I相关腮腺炎。④舍格伦综合征(Sjögren syndrome)。⑤严重的全身系统疾病。

### 1.2 检查方法

**1.2.1 病史采集和临床检查** 回顾病史时,注意患者腮腺反复肿胀的病程长度,腺体肿胀是否和进食相关,口内是否排出过长条状黏液栓子,是否伴有皮肤瘙痒或腮腺疼痛等症状,是否伴有全身过敏性疾病史以及其他全身系统疾病史。临床检查主要包括对肿大腺体的检查和口内导管唾液分泌的检查。通过视诊和触诊,评估腺体的肿大程度和质地;通过挤压受累腺体,观察导管口是否有异常唾液或黏液栓子排出。

**1.2.2 实验室检查** 患者均于医院检验科采集静脉血样本,查验血清IgE浓度以及PBE绝对计数。

**1.2.3 超声检查** 患者均行腮腺超声检查,超声仪器为日本东芝TOSHIBA-Aplio 500和日立HITACHI ALOKA Noblus,配置ARFI成像软件,9L4高频探头,频率为4~9 MHz。所有的超声检查操作均由同一位具有丰富临床经验的超声科医师完成。超声检查包括静态超声检查和动态超声检查。

(1) 静态超声检查 静态超声检查是在受检者腮腺处于无刺激状态下或静息状态下进行的超声检查,此时受检者腮腺仅有唾液的基础分泌。检查方法:受检者静坐15 min后,期间禁食禁水,取仰卧位,颈后垫枕,头转向健侧。采用直接探查法,检查范围包括患侧颌面颈部,主要观察腺体实质大小、内部回声以及导管的形态特征,通过超声图像测量并记录所有受累腺体导管扩张最宽处的内径。依据测量结果对受检者进行导管扩张程度分级,若双侧病变则以扩张较重侧为主,具体为:①轻度:1.0~2.9 mm。②中度:3.0~4.9 mm。③重度:5.0 mm及以上。

(2) 动态超声检查 动态超声检查是在受检者

腮腺处于刺激状态下或功能状态下进行的超声检查,此时受检者腮腺处于功能性唾液分泌状态。检查方法:受检者口含酸性糖果30 s后,立即采取超声检查[方法同“(1)”],观察导管的形态变化,超声图像测量并记录导管扩张最宽处的内径。与静态超声检查的结果进行比较,计算酸性刺激后导管增宽的数值以及比例,并记录受检者是否出现腮腺肿胀症状。

### 1.3 统计学方法

采用SPSS 20.0软件进行统计学分析。符合正态分布的定量资料以 $\bar{x}\pm s$ 表示;不符合正态分布的定量资料以 $M(Q_1, Q_3)$ 表示。定性资料以 $n(\%)$ 表示。

## 2 结果

### 2.1 AROP患者情况

37例患者诊断为AROP并纳入本研究,其中男性9例,女性28例,患者一般情况、临床表现以及实验室检查结果见表1。

### 2.2 超声表现

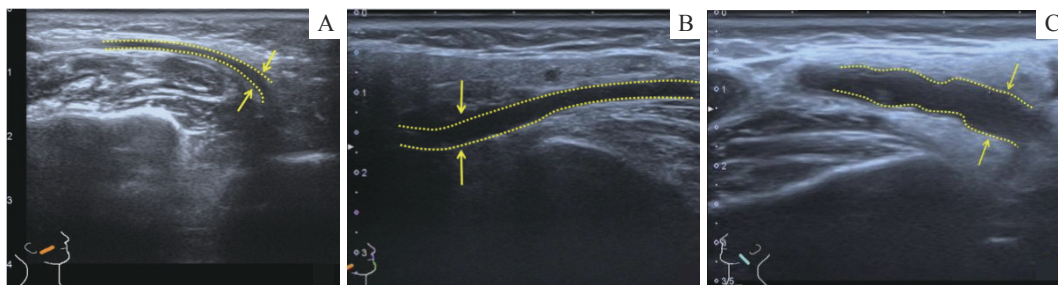
**2.2.1 静态超声表现** 37例AROP患者的静态超声

表1 AROP患者的临床特点及实验室检查( $n=37$ )

Tab 1 Clinical characteristics and laboratory examination of AROP patients ( $n=37$ )

Item	AROP
Gender/ $n(\%)$	
Male	9 (24.3)
Female	28 (75.7)
Age/year	46.0 (41.0, 53.0)
Duration of disease/year	3.0 (2.0, 5.0)
Affected parotid gland/ $n(\%)$	
Unilateral	18 (48.6)
Bilateral	19 (51.4)
Symptom/ $n(\%)$	
Swelling	37 (100.0)
Itch	23 (62.2)
Mucus plug	26 (70.3)
Pain	5 (13.5)
Allergic history/ $n(\%)$	32 (86.5)
Raised IgE/ $n(\%)$	22 (59.5)
Raised PBE/ $n(\%)$	16 (43.2)

表现为受累腺体形态饱满,内部回声不均匀,导管呈不同程度扩张或狭窄,并以导管扩张为主要表现。根据超声图像测量得到的37例AROP患者导管扩张最宽处的内径,导管扩张程度分级结果:轻度21例(56.8%),中度10例(27.0%),重度6例(16.2%)。3个分级的典型超声图像见图1。



**Note:** A. In a patient with mild duct dilation, the parotid duct was 2.7 mm wide. B. In a patient with moderate duct dilation, the parotid duct was 3.8 mm wide. C. In a patient with severe duct dilation, the parotid duct was 6.3 mm wide. The yellow dotted lines show the overall shape of the duct, and the yellow arrows show the widest dilation of the duct.

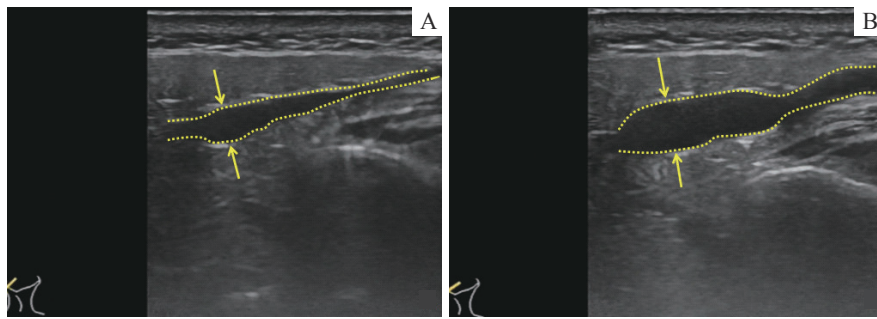
图1 导管扩张3个分级的典型超声图像

Fig 1 Typical ultrasound images of 3 grading of duct dilation

**2.2.2 动态超声表现** 本研究共有7例AROP患者行动态超声检查。根据酸性刺激后超声图像中导管的形态变化以及患者是否出现腮腺肿胀症状,将AROP患者分为以下2种类型:①非症状期:静息状态下导管呈扩张状态,功能状态下导管增宽不明显或仅轻度增

宽,患者无明显腮腺肿胀症状。②症状期:静息状态下导管呈扩张状态,功能状态下导管明显增宽(图2),患者出现腮腺肿胀症状。AROP患者的动态超声结果见表2。





**Note:** A. In an AROP patient in the symptomatic period, the parotid duct was dilated in the resting state with a width of 5.3 mm. B. After eating sour candy, the duct was significantly dilated with a width of 7.9 mm. The yellow dotted lines show the overall shape of the duct, and the yellow arrows show the widest dilation of the duct.

图2 AROP患者(症状期)的动态超声图像

Fig 2 Dynamic ultrasound images of an AROP patient (symptomatic period)

表2 AROP患者的动态超声结果( $n=7$ )

Tab 2 Dynamic ultrasound results of the AROP patients ( $n=7$ )

AROP	Case No.	Width of duct/mm		Widening value/mm	Widening ratio/%	Swelling symptom
		Resting state	Functional state			
Asymptomatic period ( $n=4$ )	1	2.7	2.9	0.2	7.4	No
	2	2.1	2.5	0.4	19.0	No
	3	3.1	3.4	0.3	9.7	No
	4	5.3	6.2	0.9	16.7	No
Symptomatic period ( $n=3$ )	5	3.3	4.9	1.6	48.5	Yes
	6	5.3	7.9	2.6	49.1	Yes
	7	6.3	8.2	1.9	30.2	Yes

### 3 讨论

AROP是一类新近被认识并逐渐得到重视的慢性腮腺疾病,研究<sup>[7-12]</sup>认为该疾病的发生发展与过敏反应密切相关。腮腺区长期的过敏反应使导管上皮损伤并出现黏液化生,脱落的上皮细胞、渗出的嗜酸性细胞和过度分泌的黏液形成黏液栓子<sup>[10-12]</sup>,导致了导管的阻塞或狭窄,唾液长期排泌受阻并淤积于导管中,最终出现导管形态改变。

本研究的结果显示,37例AROP患者的中位年龄为46.0(41.0, 53.0)岁,男女比约为1:3,提示此病中老年女性多见;这与BAER等<sup>[6]</sup>和ZHAO等的研究结果相近<sup>[7]</sup>。本组37例患者均出现腮腺反复肿胀,这是AROP的基本症状;多数患者出现腮腺区皮肤瘙痒或导管排出黏液栓子,这是AROP的特征表现,说明此疾病与过敏反应密切相关;少数患者出现腮腺疼痛,这可能与导管长期阻塞后继发逆行性感染有关。以上临床症状和CAREY等<sup>[3]</sup>的研究相近。本组有86.5%的患者伴有全身过敏性疾病史,可合并血清

IgE浓度或PBE绝对计数升高,这也说明AROP与过敏反应密切相关,提示抗过敏治疗是AROP治疗中的重要一环。

影像学检查是AROP的重要诊断依据之一,常用的检查方法包括造影、超声、CT和MRI等。本研究采用超声检查,主要用于显示导管的形态特征。相比于其他影像学检查,超声有以下3点特点:①超声安全无创、经济简便、可重复性强<sup>[13]</sup>。②腮腺导管解剖位置表浅,超声能清晰地显示导管的形态。③超声能反映导管在自然状态下的变化。

本研究AROP患者的静态超声以导管扩张为主要表现。导管的扩张情况一定程度上反映了患者症状的轻重,目前认为AROP的治疗方法应根据症状严重程度而异<sup>[14-16]</sup>,故提出AROP导管扩张程度分级方法有助于指导后续治疗。对于导管轻、中度扩张的患者,可以采取按摩腺体或导管扩张灌洗等保守治疗方法<sup>[14-16]</sup>;对于导管重度扩张的患者,可采取手术治疗,包括腺体切除术或导管改道术等<sup>[17-18]</sup>。此外,由于AROP的发生发展和过敏反应密切相关,还需要

积极进行全身抗过敏治疗<sup>[7,12,14-16]</sup>。

腮腺肿胀症状的发生与导管的阻塞状态相关。本研究采用动态超声显示患者在功能状态下腮腺导管的形态变化,并与静息状态下的导管形态进行比较,通过导管增宽的程度来反映导管的阻塞状态,这可用于AROP治疗后随访评价。本研究尚存在一些不足:①AROP患者病例数较少,且行动态超声检查的病例数也偏少。②研究缺乏对黏液栓子以及受累导管的组织病理学检查,缺乏组织学诊断证据。今后的研究将进一步完善。

#### 利益冲突声明/Conflict of Interests

所有作者声明不存在利益冲突。

All authors disclose no relevant conflict of interests.

#### 伦理批准和知情同意/Ethics Approval and Patient Consent

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象或其亲属已经签署知情同意书。

All experimental protocols in this study were reviewed and approved by the Ethics Committee of Shanghai Ninth People's Hospital, Shanghai Jiao Tong University School of Medicine (Approval Letter No. SH9H-2020-MT29-1, dated 12/29/2020), and all experimental protocols were carried out by following the guidelines of *Declaration of Helsinki*. Consent letters have been signed by the research participants or their relatives.

#### 作者贡献/Authors' Contributions

陆一凡、俞创奇参与了试验设计;陆一凡、张蔚蓓负责数据收集和分析;陆一凡、俞创奇参与了论文的写作和修改。所有作者均阅读并同意了最终稿件的提交。

The study was designed by LU Yifan and YU Chuangqi. The data was collected and analyzed by LU Yifan and ZHANG Weiqian. The manuscript was drafted and revised by LU Yifan and YU Chuangqi. All the authors have read the last version of paper and consented for submission.

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