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彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗乳腺脓肿的临床效果

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[摘要] 目的: 评价彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗乳腺脓肿的临床效果。方法: 选取2015年10月至2017年10月来兖矿新里程总医院就诊的135例哺乳期乳腺脓肿患者为研究对象, 按照随机数字法则分为3组, A组采用传统开放式引流术进行治疗, B组采用彩色多普勒超声引导下微创介入穿刺联合抗生素冲洗治疗, C组彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗, 然后对比3组临床疗效的安全性。结果: C组的愈合时间、换药次数明显低于A, B组($P<0.05$), B组的愈合时间、换药次数明显低于A组($P<0.05$), B组和C组发生乳瘘数明显低于A组($P<0.05$), 继续哺乳数明显高于A组($P<0.05$); 治疗后, 3组VAS评分均明显降低($P<0.05$), 其中B组和C组VAS评分明显低于A组($P<0.05$); A组创口愈合满意度为66.67%, B组为88.89%, C组为91.11%, B组和C组满意度明显高于A组($P<0.05$); 治疗后, 3组炎症因子CRP, P物质以及IFN- γ 水平均明显下降($P<0.05$), 其中C组炎症因子水平明显低于B组和A组($P<0.05$), B组明显低于A组($P<0.05$)。结论: 彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗乳腺脓肿效果更佳, 值得在临床推广应用。

[关键词] 乳腺脓肿; 超声引导; 穿刺灌洗; 抗生素; 臭氧

Clinical effect of minimally invasive puncture combined with ozone cavity injection guided by color doppler ultrasound in the treatment of mammary abscess

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Abstract **Objective:** To evaluate the clinical effect of minimally invasive puncture guided by color doppler ultrasound combined with ozone cavity injection in the treatment of mammary abscess. **Methods:** In October 2015 to October 2017, 135 patients with breast abscess from Yankuang New Mileage General Hospital were selected as the research objects. According to the law of random numbers, the patients were divided into three groups: group A was given traditional open drainage treatment, group B was given color doppler ultrasound guided minimally invasive interventional puncture with antibiotic treatment, group C was given color doppler ultrasound guided

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minimally invasive interventional puncture combined ozone cavity injection treatment, and the safety of the three groups of patients with clinical curative effect were compared. **Results:** The healing time, switching times of group C were obviously lower than those of group A, B ($P<0.05$); healing time, switching times of group B were obviously lower than those of group A ($P<0.05$), mammary fistula in group B and group C were significantly lower than that of group A ($P<0.05$), and the number of continued breastfeeding was significantly higher than that of group A ($P<0.05$). After the treatment, the VAS scores of group B and C were obviously lower than those in group A ($P<0.05$); the satisfaction degree of wound healing was 66.67% in group A, 88.89% in group B, 91.11% in group C, and that in group B and group C were significantly higher than that in group A ($P<0.05$). After the treatment, the levels of inflammatory cytokines CRP, substance P and IFN- γ of the three groups decreased significantly ($P<0.05$). Including inflammatory factor levels of group C was lower than that in group B and group A ($P<0.05$), group B was lower than that in group A ($P<0.05$). **Conclusion:** Color doppler ultrasound guided minimally invasive interventional puncture combined ozone cavity injection has better effect to treat breast abscess, which is worth popularizing in clinical application.

Keywords mammary abscess; ultrasonic guidance; puncture irrigation; antibiotics; ozone

哺乳期乳腺脓肿是乳腺的急性化脓性感染, 是产妇常见疾病, 多发于产后3~4周, 其主要是因为乳头皲裂以及导管畸形、乳汁淤积等引起炎症反应, 诱发急性乳腺炎, 然后迅速形成脓肿^[1-2]。临床上多采用切开引流术, 但其手术切口大, 住院时间长, 容易感染, 术后疤痕大, 给患者的身心造成较大伤害^[3-4]。寻找能保留乳房美观, 且不影响哺乳功能的治疗方法迫在眉睫。随着医学设备的不断发展, 影像学及介入水平的提高, 乳房脓肿外科治疗逐步向微创化发展。本研究对来本院就诊的哺乳期乳腺脓肿患者分别行传统切开引流、彩色多普勒超声引导下微创介入穿刺联合抗生素冲洗、彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗。

1 对象与方法

1.1 对象

选取2015年10月至2017年10月来兖矿新里程总医院就诊的哺乳期乳腺脓肿患者作为研究对象, 纳入标准: 有明确的乳汁淤积病史, 乳房能扪及边界不清的肿块, 有压痛, 经彩色多普勒超声和穿刺确诊为乳腺脓肿, 且超声检测为单发, 脓肿最大直径 ≤ 5.0 cm。排除标准: 非哺乳期妇女; 炎性包块未形成脓肿; 局部皮肤已经溃烂或有窦道。所有入选患者签署知情同意书。最终纳入符合要求的患者135例, 按照随机数字法分为3组, 每组45例, 其中A组年龄20~33(26.32 \pm 4.02)岁, 脓腔直径2.0~3.0(3.42 \pm 1.54) cm; B组年

龄21~33(26.51 \pm 3.78)岁, 脓腔直径2.0~3.0(3.43 \pm 1.50) cm; C组年龄20~33(26.45 \pm 4.00)岁, 脓腔直径2.0~3.0(3.40 \pm 1.51) cm, 3组基本资料经统计学分析无统计学意义($P>0.05$)。本研究经兖矿新里程总医院医学伦理委员会批准展开。

1.2 治疗方法

A组采用传统开放式引流术进行治疗, 患者行彩色多普勒超声检测, 确定脓肿位置, 采用放射状切口切开脓肿, 控制切口略大于脓肿直径, 将各层脓腔钝性分离, 同时进行负向引流术, 脓腔内填满凡士林纱布, 加压包扎, 术后3 d每日消毒更换药物和敷料, 脂质伤口无任何分泌物渗出。

B组采用彩色多普勒超声引导下微创介入穿刺联合抗生素冲洗治疗, 即患者行穿刺术, 进行细菌培养和药敏实验。同时给予广谱抗生素, 预防感染, 超声确定脓肿部位、数量、大小以及深度等, 然后设计多向式负压引流器置入点和方向。利用利多卡因进行局部浸润麻醉, 入口确定之后, 将引流管各个分支达到脓腔深面, 之后采用气囊将引流管固定于脓腔入口处, 取敏感抗生素反复灌洗, 待引流液清澈停止灌洗。

C组彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗, 即患者取仰卧位, 超声扫描, 标记脓肿范围及拟行穿刺冲洗的进针点及方向, 局部浸润麻醉, 在超声实时引导下, 穿刺脓腔适当位置, 尽量抽尽脓液, 然后采用利多卡因反复冲洗脓腔, 直至冲洗液变淡红或乳汁样为

止, 根据脓腔大小给予适量臭氧, 维持适当压力 3 min 以上。第1次穿刺后根据情况在第2天或第3天重复上述治疗, 直至脓腔愈合。

1.3 观察指标

脓肿治愈标准: 局部无红肿热痛及分泌物, 超声检测脓腔完全愈合, 局部无液性暗区。疼痛程度评分, 采用NRS评分表记录治疗的疼痛程度, 0~10, 0表示无疼痛, 10表示极度疼痛。并发症包括引流管堵塞、意外脱管、漏乳以及二次感染等。创口美容满意度: 患者对创口愈合效果满意度, 分为3个等级: 不满意、一般和满意。血清炎症因子: CRP、P物质以及IFN- γ , 于治疗前和治疗后7 d, 清晨空腹抽取静脉血5 mL, 离心得血清, 采用自动生化分析仪检测CRP水平, 采用酶联免疫法检测P物质和IFN- γ 。

1.4 统计学处理

采用SPSS 16.0统计软件进行数据分析, 计量资料以均数 \pm 标准差($\bar{x}\pm s$)表示。组间比较采用 t 检验或方差分析, 计数资料采用 χ^2 检验。 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 3组脓腔愈合时间、换药次数、乳瘘以及治疗后继续哺乳情况对比

3组均顺利完成治疗并全部治愈, 其中C组的愈合时间、换药次数明显低于其他两组($P<0.05$), B组的愈合时间、换药次数明显低于A组($P<0.05$), B组和C组发生乳瘘数明显低于A组($P<0.05$), 继续哺乳数明显高于A组($P<0.05$), 而B组和C组发生乳瘘例数和继续哺乳数差异无统计学意义($P>0.05$, 表1)。

2.2 3组治疗前后NRS评分对比

3组治疗前, VAS评分差异无统计学意义($P>0.05$); 治疗后, 3组VAS评分均明显降低($P<0.05$), 其中B组和C组VAS评分明显低于A组($P<0.05$, 表2)。

2.3 3组创口美容满意度对比

A组满意度为66.67%, B组满意度为88.89%, C组满意度为91.11%, B组和C组满意度明显高于A组($P<0.05$; 表3, 图1, 2)。

表1 3组脓腔愈合时间、换药次数、乳瘘以及治疗后继续哺乳情况对比($n=45$)

Table 1 Comparison of abscess cavity healing time, frequency of dressing change, breast fistula, and lactation after treatment among the three groups ($n=45$)

组别	愈合时间/d	换药次数	发生乳瘘/[例(%)]	继续哺乳/[例(%)]
A组	19.25 \pm 6.35	16.08 \pm 1.23	20 (44.44)	15 (33.33)
B组	10.24 \pm 3.02*	6.23 \pm 0.32*	6 (13.33)*	40 (88.89)*
C组	7.19 \pm 2.98* [#]	5.56 \pm 0.24* [#]	6 (13.33)*	41 (91.11)*

与A组比较, * $P<0.05$; 与B组比较, [#] $P<0.05$ 。

Compared with group A, * $P<0.05$; compared with group B, [#] $P<0.05$.

表2 3组治疗前后NRS评分对比($n=45$)

Table 2 Comparison of NRS scores before and after the treatment among the three groups ($n=45$)

组别	NRS评分	
	治疗前	治疗后第2天
A组	6.21 \pm 1.31	4.08 \pm 0.34 [#]
B组	6.24 \pm 1.30	3.23 \pm 0.31* [#]
C组	6.19 \pm 1.18	3.16 \pm 0.28* [#]

与A组比较, * $P<0.05$; 与治疗前比较, [#] $P<0.05$ 。

Compared with group A, * $P<0.05$; compared with before the treatment, [#] $P<0.05$.

表3 3组创口美容满意度对比($n=45$)

Table 3 Comparison of wound beauty satisfaction among the three groups ($n=45$)

组别	创口美容满意度/[例(%)]		
	不满意	一般	满意
A组	7 (15.56)	8 (17.78)	30 (66.67)
B组	2 (4.44)	3 (6.67)	40 (88.89)*
C组	1 (2.22)	3 (6.67)	41 (91.11)*

与A组比较, * $P<0.05$ 。

Compared with group A, * $P<0.05$.



图1 3种方法治疗哺乳期乳腺脓肿效果图

Figure 1 Effect diagram of three methods for the treatment of lactation mammary abscess

(A)A组治疗前; (B)B组治疗前; (C)C组治疗前; (D)A组治疗痊愈后; (E)B组治疗痊愈后; (F)C组治疗痊愈后。

(A) Before treatment in group A; (B) Before treatment in group B; (C) Before treatment in group C; (D) After treatment and recovery in group A; (E) After treatment and recovery in group B; (F) After treatment and recovery in group C.

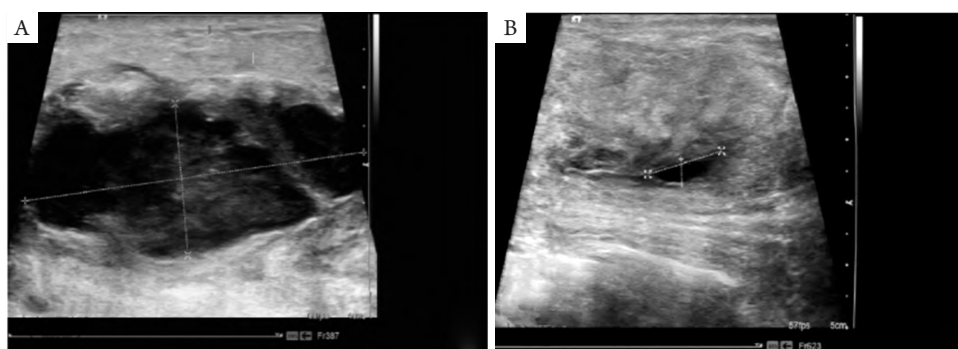


图2 彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗前后超声形态图

Figure 2 Color doppler ultrasound-guided minimally invasive puncture combined with ozone cavity injection before and after treatment

(A)超声下乳腺脓腔的原始形态, 显示为4.8 cm × 1.8 cm的不均质无回声区, 边界增厚, 内见密集光点回声, 腔内分隔形成; (B)超声下微创治疗后负压引流管残存的窦道形态, 显示为1.2 cm × 0.3 cm的无回声区, 内透声好。

(A) Ultrasound mammary gland pus cavity under the original form, shown as 4.8 cm × 1.8 cm the heterogeneity of anechoic area, thickening of the boundary, see in dense light echo, cavity space form; (B) Ultrasonic under negative pressure drainage tube after minimally invasive treatment of residual fistula form, shown as 1.2 cm × 0.3 cm anechoic area, through sound good.

2.4 3组治疗前后血清炎症因子CRP, P物质以及IFN- γ 水平比较

治疗前, 3组炎症因子CRP, P物质以及IFN- γ 水平均处于较高水平, 组间比较无统计学意义

($P>0.05$)。治疗后, 三组患者的炎症因子CRP, P物质以及IFN- γ 水平均明显下降($P<0.05$)。其中C组炎症因子水平明显低于B组和A组($P<0.05$), B组明显低于A组($P<0.05$, 表4)。

表4 3组治疗前后血清炎症因子CRP, P物质以及IFN- γ 水平比较($n=45$)

Table 4 Comparison of serum inflammatory factors CRP, substance P and IFN- γ before and after treatment in the three groups ($n=45$)

组别	CRP/(mg·L ⁻¹)		P物质/(pg·mL ⁻¹)		IFN- γ /(ng·L ⁻¹)	
	治疗前	治疗后第2天	治疗前	治疗后第2天	治疗前	治疗后第2天
A组	22.81 ± 4.52	8.19 ± 1.13 ^{&}	84.89 ± 10.19	46.74 ± 9.18 ^{&}	73.29 ± 11.02	60.21 ± 10.21 ^{&}
B组	22.89 ± 4.38	6.42 ± 0.89 ^{*&}	85.02 ± 9.97	43.76 ± 5.61 ^{*&}	72.98 ± 10.94	56.52 ± 7.82 ^{*&}
C组	23.03 ± 4.47	5.64 ± 0.43 ^{*#&}	84.94 ± 10.02	38.82 ± 4.18 ^{*#&}	73.05 ± 11.01	52.19 ± 4.69 ^{*#&}

与A组比较, * $P<0.05$; 与B组比较, # $P<0.05$; 与治疗前比较, & $P<0.05$ 。

Compared with group A, * $P<0.05$; compared with group B, # $P<0.05$; compared with before the treatment, & $P<0.05$ 。

3 讨论

WHO以及联合国儿童基金为了保证婴儿健康成长, 在全世界推广母乳喂养^[5]。但在哺乳期, 因自身激素的改变和婴儿吮吸的刺激, 乳汁开始大量分泌, 可能会引起乳腺导管不通畅或乳头闭塞, 进而引起乳汁大量瘀滞, 一旦乳头皮肤破损, 就会导致细菌入侵, 引起乳腺感染, 发展成为急性乳腺炎或乳腺脓肿, 从而无法继续母乳喂养^[6-7]。传统治疗方法多以脓肿切开配合抗感染治疗, 尽管疗效确切, 但存在创伤大、愈合周期长、疤痕明显等缺点^[8]。

近些年来, 为了保留患者的哺乳功能且达到更好的美容效果, 美容切口、负压引流、小切口直观、超声引导下穿刺等等术式开始在临床中尝试应用。其中超声引导下穿刺灌洗联合抗生素治疗操作简单, 创伤小, 且能够保留乳房的美观和功能, 得以在临床中大量推广应用, 已成为治疗乳腺脓肿的首选方案, 然而过度的使用抗生素会引起诸多不良后果, 譬如耐药性或双重感染等, 从而给患者的健康带来严重影响^[9]。

臭氧作为氧的同素异形体, 具有杀菌、抗炎和镇痛的作用, 且在发挥作用后自我分解为水和氧分子, 不会产生二次污染, 安全经济有效, 目前已在糖尿病足、腰间盘突出治疗中应用, 临床疗效显著^[10-11]。乳腺脓肿为局限化脓性炎症, 细菌产生毒素致使组织坏死, 并促使中性粒细胞浸润和崩解形成脓细胞, 释放蛋白水解酶促使乳汁形成脓液,

产生大量的炎症因子如CRP、P物质以及IFN- γ , 进一步使患者血管收缩, 造成局部缺血缺氧, 加重感染^[12]。本研究通过对比传统切开引流(A组)、彩色多普勒超声引导下微创介入穿刺联合抗生素冲洗(B组)、彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗乳腺脓肿(C组), 结果显示: C组的愈合时间、换药次数明显低于其他两组, B组的愈合时间、换药次数明显低于A组; B组和C组发生乳痿例数明显低于A组, 继续哺乳例数明显高于A组($P<0.05$); B组和C组满意度明显高于A组; 治疗后, 3组炎症因子CRP, P物质以及IFN- γ 水平均明显下降, 其中C组炎症因子水平明显低于B组和A组, B组明显低于A组。超声引导下的穿刺灌洗不仅能够明显减少脓腔内坏死物质、炎症因子和感染细菌, 与臭氧联合应用, 既可以将细菌消灭, 同时还能改善细胞功能和微循环, 医用臭氧不仅能够替代抗生素杀菌, 同时能增加局部供氧, 加快创面愈合, 缩短了愈合时间、减少了换药次数, 从而降低了患者的负担, 提高了母乳喂养的成功率。

综上所述, 彩色多普勒超声引导下微创介入穿刺联合臭氧腔内注入治疗乳腺脓肿效果更佳, 值得在临床推广应用。

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