

· 论著 ·

蛋黄油联合清热解毒汤外洗在肛周脓肿术后创面愈合中的应用

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摘要 **目的** 基于创面肉芽组织中生长因子探讨蛋黄油联合清热解毒中药外洗对肛周脓肿患者术后创面愈合的促进作用。**方法** 选取我院2023年1月至5月收治的80例肛周脓肿手术患者, 随机分为对照组和观察组, 每组40例。术后3 d, 对照组予以清热解毒中药外洗, 凡士林纱布换药等常规治疗, 观察组在此基础上加用蛋黄油治疗, 连续治疗7 d。比较2组临床疗效、临床症状改善情况及不同时间点创面恢复情况、血清炎性细胞因子、创面肉芽组织相关因子表达水平。**结果** 观察组临床总有效率高于对照组 (95% vs. 75%, $P < 0.05$); 观察组创面瘙痒消失、腐肉脱落、新生上皮出现及愈合时间均短于对照组 ($P < 0.05$); 术后7 d、10 d观察组疼痛程度、创面分泌物、肉芽形态及周围组织水肿评分较对照组显著下降 ($P < 0.05$); 术后7 d、10 d观察组血清白细胞介素 (IL)-1 β 、IL-8、肿瘤坏死因子- α (TNF- α) 水平低于对照组 ($P < 0.05$), 创面肉芽组织碱性成纤维细胞生长因子-2 (FGF-2)、血管内皮细胞生长因子 (VEGF)、转化生长因子- β (TGF- β) 水平高于对照组 ($P < 0.05$)。**结论** 蛋黄油联合清热解毒中药外洗能显著改善肛周脓肿患者的临床症状, 促进创面愈合, 治疗效果显著, 可能与抑制炎性细胞因子表达、促进创面肉芽组织生长因子表达有关。

关键词 肛周脓肿; 蛋黄油; 生长因子; 中药外洗; 血清炎性细胞因子; 创面愈合

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Application of egg yolk oil combined with Qingrejiedu decoction for external washing to promote wound healing after perianal abscess surgery

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Abstract **Objective** To explore the promoting effect of egg yolk oil combined with heat-clearing and detoxifying traditional Chinese medicine external washing on postoperative wound healing in patients with perianal abscesses based on growth factors in the wound granulation tissue. **Methods** Eighty patients with perianal abscesses admitted to our hospital from January 2023 to May 2023 were randomly divided into a control group and an observation group, with 40 patients in each group. Three days after surgery, the control group received routine treatment, such as external washing with heat-clearing and detoxifying Chinese herbal medicine and dressing changes with vaseline gauze. The observation group received additional treatment with egg yolk oil, and both groups were treated continuously for 7 days. The clinical efficacy, improvement in clinical symptoms, and wound recovery at different time points; serum inflammatory cytokines; and expression levels of wound granulation tissue-related factors were compared between the two groups. **Results** The total effective rate was higher in the observation group than the control group (95% vs. 75%, $P < 0.05$). The time of pruritus disappearance, decaying flesh, emergence of new epithelium, and healing were shorter in the observation group than in the control group ($P < 0.05$). The pain degree, wound secretion, granulation morphology and surrounding tissue edema score of the observation group were significantly decreased at 7 and 10 days after surgery compared with the control group ($P < 0.05$). Serum levels of interleukin (IL)-1 β , IL-8, and tumor necrosis factor- α were lower in the observation group than the control group at 7 and 10 days after surgery ($P < 0.05$). The levels of basic fibroblast growth factor, vascular endothelial cell growth factor, and transforming growth factor- β in wound granulation tissue were higher in the observation group than the control group at 7 and 10 days after surgery ($P < 0.05$). **Conclusion** The external application of egg yolk oil combined with heat-clearing and detoxifying Chinese herbs can significantly improve the clinical symptoms of patients with perianal abscesses and promote wound healing, with significant therapeutic effects. This may be related to the inhibition of inflammatory cytokine expression and the promotion of wound granulation tissue growth factor expression.

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肛周脓肿是一种急性化脓性感染,主要表现为肛门周围局部隆起、瘙痒、疼痛等,且疼痛多呈持续性,行走、排便时加剧,对患者的生活质量造成严重影响^[1]。外科手术是肛周脓肿的根治性手段,但为了充分引流脓液,手术创面一般较大,且手术部位较为特殊,易受病原微生物刺激感染,导致创面分泌物增加,术后疼痛明显,创面愈合缓慢,增加患者身心痛苦^[2]。既往临床常采用抗生素预防感染,但抗生素易产生耐药,治疗效果有限。近年来,中药外洗在临床应用较为广泛,可直接作用于病灶,发挥疗疮生肌、清热解毒之功效,且操作方便、可行性高^[3]。蛋黄油是从鸡蛋中提取的油脂成分,具有清热消炎、收敛生肌的作用^[4]。相关研究^[5]表明,创面换药是减少创面感染、促进创面愈合的关键操作。本研究于术后换药时蘸取鸡蛋油敷于创面,并尝试从细胞因子角度探讨蛋黄油对肛周脓肿术后创面影响的作用机制,旨在为优化肛周脓肿治疗提供新思路。

1 材料与方法

1.1 研究对象

选取我院2023年1月至5月收治的80例肛周脓肿手术患者。纳入标准:与《外科学》^[6]中肛周脓肿诊断标准相符;均行一次性肛周脓肿根治术;年

龄 ≥ 18 岁;精神、意识正常,研究开展前已向患者说明研究风险、目的、程序等,患者知情同意并签署知情同意书。排除标准:严重营养不良;造血功能、肝肾功能、免疫功能异常;合并严重心脑血管疾病;伴有凝血功能障碍;术前肛门功能、形态异常;存在肛周手术史或外伤史;合并严重内分泌疾病、传染性疾病(梅毒、艾滋病、病毒性肝炎等);对本研究药物过敏;经期、妊娠期女性;合并胃肠道疾病(结肠直肠癌、结肠炎、克罗恩病等)或前列腺疾病。剔除标准:患者不配合随机化入组;治疗期间私自使用其他治疗方式或不能遵医嘱用药。随机将80例患者分为对照组($n = 40$)和观察组($n = 40$),2组性别、病程、年龄、创口面积、感染部位等一般资料均衡,具有可比性($P > 0.05$),见表1。本研究获得我院医学伦理委员会审核批准(HBZY2022-KY-056-01)。

1.2 方法

2组均行常规外科手术治疗,术后予以头孢呋辛(规格:0.75 g;生产企业:深圳信立泰药业股份有限公司;国药准字H20000410)静脉滴注,具体剂量为取0.75 g溶于0.9%氯化钠溶液100 mL,2次/d,间隔8 h,持续3 d。对照组术后第3天起予以清热解毒中药外洗。中药组成:黄柏16 g,苦参12 g,花椒6 g,紫花地丁18 g,蛇床子10 g,地肤子18 g,五倍子8 g,薏苡仁30 g,蒲公英18 g,当归16 g,防风12 g,皂角刺10 g,金

表1 2组一般资料比较

Tab.1 Comparison of general characteristics of the two groups

Item	Observation group ($n = 40$)	Control group ($n = 40$)	t / χ^2	P
Sex [n (%)]			0.450	0.502
Male	18 (45.00)	21 (52.50)		
Female	22 (55.00)	19 (47.50)		
Age (year)	35.35 \pm 3.18	34.87 \pm 3.26	0.816	0.416
Area of the wound (cm ²)	20.23 \pm 2.28	19.75 \pm 2.03	0.994	0.323
Course of disease (d)	6.24 \pm 1.06	6.57 \pm 1.12	1.353	0.180
Site of infection [n (%)]			1.044	0.593
Interosseous abscess	11 (27.50)	15 (37.50)		
Subcutaneous abscess	22 (55.00)	20 (50.00)		
Sciatico-rectal space abscess	7 (17.50)	5 (12.50)		

银花18 g,川芎9 g,秦皮16 g,松花粉3 g;使用方法:取上述中药1剂,加水3 500 mL煎煮30 min,取药液熏蒸患处10~15 min,待温度降至约40 ℃,坐浴20 min,坐浴后采用0.9%氯化钠溶液冲洗创腔,碘伏消毒,再以凡士林纱布引流,换药(1次/d),直至伤口完全愈合。观察组在对照组基础上加用蛋黄油治疗,换药时用小纱条(2 cm × 5 cm)蘸取蛋黄油敷于创面(1次/d),直至伤口愈合。

1.3 观察指标

1.3.1 临床疗效^[7]评价:治愈,创腔、创面完全愈合,临床症状、体征完全消失,病灶彻底清除;显效,创腔容积较治疗前缩小≥75%,创面基本愈合,临床症状消失;有效,创腔容积较治疗前缩小50%~<75%,创面好转,临床症状明显改善;无效,未达到上述标准。总有效率=1-无效率。

1.3.2 临床症状改善情况:记录2组创面瘙痒消失、腐肉脱落、新生上皮出现及愈合时间。

1.3.3 创面愈合情况:观察比较2组术后3 d、7 d、10 d创面分泌物、疼痛程度、肉芽形态及周围组织水肿情况。创面分泌物^[8]以渗透纱布层数评估,分别将无渗液、渗透1~3层纱布、渗透4~6层纱布、渗透>6层纱布计0、1、2、3分;疼痛程度参考视觉模拟评分法^[9](visual analogue scale, VAS)评估,以数字“0~10”表示患者主观疼痛程度,分数越大,疼痛越剧烈;肉芽形态^[10]以肉芽糜烂坏死、色泽暗淡计3分,有少量炎性肉芽、整体颜色苍白计2分,肉芽分布均匀、呈淡红色计1分,肉芽生长良好、色泽红润计0分;组织水肿^[11]以无水腫计0分,轻微水肿计1分,中度水肿计2

分,重度水肿计3分。

1.3.4 血清炎性细胞因子:分别于术后3 d、7 d、10 d采集患者外周静脉血5 mL,3 500 r/min离心10 min,离心半径10 cm,分离上清液,采用ELISA法检测血清白细胞介素(interleukin, IL)-1β、IL-8、肿瘤坏死因子-α(tumor necrosis factor-α, TNF-α)水平。

1.3.5 创面肉芽组织相关因子:分别于术后3 d、7 d、10 d钳取患者创面肉芽组织,以蛋白裂解液分离组织蛋白,采用ELISA法测定血管内皮细胞生长因子(vascular endothelial growth factor, VEGF)、转化生长因子-β(transforming growth factor-β, TGF-β)、碱性成纤维细胞生长因子-2(fibroblast growth factor 2, FGF-2)的表达水平。

1.4 统计学分析

研究调查结果双人录入,采用SPSS 22.0统计学软件分析数据,经K-S检验符合正态分布的计量资料以 $\bar{x} \pm s$ 表示,创面恢复情况、血清炎性细胞因子、创面肉芽组织相关因子、肛门功能等多时间点指标采用重复测量方差分析,组内比较采用配对样本t检验,组间比较采用独立样本t'检验。临床疗效、性别等计数资料以率(%)表示,组间比较采用 χ^2 检验, $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 2组临床疗效比较

观察组临床总有效率高於对照组($P < 0.05$)。见表2。

2.2 2组临床症状改善情况比较

表2 2组临床疗效比较[n (%)]

Tab.2 Comparison of clinical efficacy between the two groups [n (%)]

Group	n	Curable	Significant effect	Effective	Invalid	Total effective
Observation	40	24 (60.00)	9 (22.50)	5 (12.50)	2 (5.00)	38 (95.00)
Control	40	15 (37.50)	10 (25.00)	5 (12.50)	10 (25.00)	30 (75.00)
χ^2						6.275
P						0.012

观察组创面瘙痒消失、腐肉脱落、新生上皮出现及愈合时间均短于对照组($P < 0.05$)。见表3。

2.3 2组创面恢复情况比较

2组术后3 d疼痛程度、肉芽形态、创面分泌物

及周围组织水肿评分比较,差异无统计学意义($P > 0.05$);相较于术后3 d,2组术后7 d及10 d疼痛程度、肉芽形态、创面分泌物及周围组织水肿评分均显著下降,且观察组低于对照组($P < 0.05$)。见表4。

表3 2组临床症状改善情况比较 ($\bar{x} \pm s, d$)Tab.3 Comparison of clinical symptom improvement between the two groups ($\bar{x} \pm s, d$)

Group	n	Time for traumatic itching to disappear	Time of emergence of neoplastic epithelium	Wound-carrion-shedding time	Wound-healing time
Observation	40	4.14 ± 1.42	6.49 ± 0.44	3.42 ± 0.34	23.45 ± 3.22
Control	40	6.27 ± 2.09	8.27 ± 1.25	4.27 ± 0.52	31.28 ± 5.74
t		5.332	8.495	8.653	7.524
P		<0.001	<0.001	<0.001	<0.001

表4 2组创面恢复情况比较 ($\bar{x} \pm s, \text{分}$)Tab.4 Comparison of wound recovery between the two groups ($\bar{x} \pm s, \text{score}$)

Different time points	n	Wound secretions	Degree of wound pain	Wound granulation morphology	Edema of surrounding tissue around the wound
3 days after surgery					
Observation group	40	2.14 ± 0.36	2.26 ± 0.26	1.74 ± 0.58	2.27 ± 0.38
Control group	40	2.08 ± 0.39	2.24 ± 0.27	1.69 ± 0.43	2.19 ± 0.40
t		0.715	0.337	0.438	0.917
P		0.477	0.737	0.663	0.362
7 days after surgery					
Observation group	40	0.42 ± 0.18	0.35 ± 0.10	0.25 ± 0.06	0.78 ± 0.27
Control group	40	0.82 ± 0.24	0.74 ± 0.20	0.68 ± 0.34	1.28 ± 0.39
t		8.433	11.031	7.877	6.667
P		<0.001	<0.001	<0.001	<0.001
10 days after surgery					
Observation group	40	0.39 ± 0.12	0.32 ± 0.08	0.22 ± 0.05	0.74 ± 0.13
Control group	40	0.75 ± 0.28	0.68 ± 0.15	0.62 ± 0.27	1.26 ± 0.34
t		7.474	13.393	9.213	9.035
P		<0.001	<0.001	<0.001	<0.001

2.4 2组血清炎性细胞因子比较

2组术后3 d血清IL-1 β 、IL-8、TNF- α 水平比较,差异无统计学意义 ($P > 0.05$);相较于术后3 d,2组术后7 d及10 d血清IL-1 β 、IL-8、TNF- α 水平均显著下降,且观察组低于对照组 ($P < 0.05$)。见表5。

2.5 2组创面肉芽组织相关因子比较

2组术后3 d创面肉芽组织VEGF、TGF- β 、FGF-2比较,差异无统计学意义 ($P > 0.05$);相较于术后3 d,2组术后7 d及10 d创面肉芽组织VEGF、TGF- β 、FGF-2均明显升高,且观察组高于对照组 ($P < 0.05$)。见表6。

3 讨论

中医将肛周脓肿归属于“肛痈”范畴,其病因病机为平素饮食不洁,致毒热湿邪内生,壅滞于肛周,阻滞经络,血运不畅,而血败肉腐。手术排脓后,

虽能疏泄湿热毒瘀,但易损伤经脉,致使气血运行于脉外,气血瘀滞,故而不通而痛^[12]。可见,气滞血瘀、湿热毒邪贯穿该疾病病理生理各个阶段。因此,敛疮生肌、清热解毒为主要治疗原则。中药外洗是中医传统疗法之一,能利用热力与药力的双重作用,促进周身血液循环,缓解术后疼痛,加速创面愈合。此外,传统医学认为,蛋黄油性甘平,具有收敛生肌、消炎止痛、养血滋阴之功效。因此,为保障创面清洁、干燥,引流通畅,本研究在创面换药时联合应用蛋黄油。结果显示,与对照组相比,观察组临床症状改善时间均缩短,术后7 d、10 d创面分泌物、疼痛、肉芽形态、组织水肿评分均降低,治疗效率明显提高,表明蛋黄油能促进创面愈合,提高治疗效果。其原因可能为蛋黄油中富含脂肪酸、维生素A、蛋白质、维生素D及铁、锌、硒等微量元素,对肉芽残存的皮岛增生、组织新陈代谢具有促进作用,能促进创

表5 2组血清炎性细胞因子水平比较 ($\bar{x} \pm s$, pg/mL)

Tab.5 Comparison of serum inflammatory cytokines levels between the two groups ($\bar{x} \pm s$, pg/mL)

Different time points	<i>n</i>	IL-1 β	IL-8	TNF- α
3 days after surgery				
Observation group	40	9.34 \pm 1.25	350.26 \pm 41.37	18.67 \pm 2.37
Control group	40	9.30 \pm 1.09	348.27 \pm 40.98	18.62 \pm 2.31
<i>t</i>		0.153	0.216	0.096
<i>P</i>		0.879	0.829	0.924
7 days after surgery				
Observation group	40	3.14 \pm 0.79	57.79 \pm 12.10	10.06 \pm 1.02
Control group	40	5.28 \pm 0.94	80.57 \pm 11.94	12.38 \pm 1.25
<i>t</i>		11.023	8.475	9.095
<i>P</i>		<0.001	<0.001	<0.001
10 days after surgery				
Observation group	40	3.02 \pm 0.27	55.26 \pm 10.98	9.78 \pm 1.45
Control group	40	4.98 \pm 0.35	77.41 \pm 12.03	11.87 \pm 1.69
<i>t</i>		28.043	8.601	5.936
<i>P</i>		<0.001	<0.001	<0.001

表6 2组创面肉芽组织相关因子比较 ($\bar{x} \pm s$)

Tab.6 Comparison of trabecular-granulation-tissue-related factors between the two groups ($\bar{x} \pm s$)

Different time points	<i>n</i>	VEGF (ng/L)	TGF- β (ng/mL)	FGF-2 (ng/L)
3 days after surgery				
Observation group	40	36.57 \pm 5.41	645.27 \pm 50.26	34.18 \pm 4.39
Control group	40	37.12 \pm 5.07	648.39 \pm 52.83	34.25 \pm 4.46
<i>t</i>		0.469	0.271	0.071
<i>P</i>		0.640	0.787	0.944
7 days after surgery				
Observation group	40	49.63 \pm 4.55	834.29 \pm 30.25	105.26 \pm 16.84
Control group	40	43.25 \pm 4.28	769.84 \pm 45.83	80.36 \pm 9.29
<i>t</i>		6.460	7.423	8.188
<i>P</i>		<0.001	<0.001	<0.001
10 days after surgery				
Observation group	40	50.12 \pm 5.14	839.44 \pm 45.89	106.44 \pm 15.84
Control group	40	44.39 \pm 5.06	775.63 \pm 50.12	83.29 \pm 12.56
<i>t</i>		5.024	5.939	7.243
<i>P</i>		<0.001	<0.001	<0.001

面坏死组织脱落,从而加速创面愈合^[13-14]。

炎症反应是造成创面分泌物渗出、经久不愈的重要因素。IL-1 β 、TNF- α 是启动炎症反应的细胞因子,可聚集大量抗体和免疫细胞,引发获得性免疫,与创口感染程度显著相关^[15]。IL-8可激活中性粒细胞,具有趋化作用,参与机体炎症反应。有研究^[16]证实,生长细胞因子是促进创面修复的关键因子。VEGF能促进肛周血管新生,营养肉芽组织;TGF- β

作为多肽类生长因子,能诱导肉芽组织与成纤维细胞增生,促进创面愈合;FGF-2能通过激活蛋白激酶信号通路,促进创面修复细胞增殖分化^[17]。本研究结果显示,术后7 d、10 d观察组血清炎性细胞因子较对照组降低,创面肉芽组织相关生长因子表达较对照组显著升高,提示蛋黄油能降低炎性因子水平,调节生长因子表达,这可能是蛋黄油能加速创面愈

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合的关键原因。目前, 蛋黄油的抗炎活性也被陆续鉴定, XIAO等^[18]指出, 蛋黄油具有明确的抗氧化作用, 有利于缓解机体炎症反应, 促进成纤维细胞增殖, 且蛋黄脂质具有疏水性, 能为肉芽组织提供合适的生长环境, 利于创面愈合。而术后第7天与第10天比较, 炎症细胞因子与生长因子水平无较大差异, 说明此阶段生长因子分泌较为旺盛, 成纤维细胞及毛细血管增殖迅速, 有助于伤口加速愈合。

综上所述, 蛋黄油联合清热解毒中药外洗能减轻肛周脓肿患者机体炎症反应, 促进生长因子分泌, 利于患者临床症状改善、创面加速愈合, 疗效确切。

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