

doi: 10.13241/j.cnki.pmb.2019.06.029

鼻中隔成形术中鼻腔填塞法及鼻中隔“8”字缝合法的疗效比较研究*

李 岗 姚 昆[△] 朱玄生 曹 玮 尹志利

(安徽医科大学附属阜阳医院耳鼻咽喉头颈外科 安徽 阜阳 236000)

摘要 目的:探讨鼻中隔成形术中鼻腔填塞法及鼻中隔“8”字缝合法的疗效。**方法:**选取 2017 年 7 月~2018 年 7 月期间我院收治的拟行鼻中隔成形术的鼻中隔偏曲患者 60 例。采用乱数表法将患者分为对照组、实验组两组,各 30 例患者,两组患者均行鼻内镜下鼻中隔成形术,术后对照组给予鼻腔填塞法处理,实验组给予鼻中隔“8”字缝合法处理。比较两组术后临床疗效、鼻粘膜水肿情况,观察两组不同时间点视觉疼痛模拟评分(VAS)情况,记录两组患者术后鼻中隔并发症发生情况。**结果:**实验组术后 7d 临床总有效率为 96.67%(29/30),显著高于对照患者的 80.00%(24/30),差异有统计学意义($P<0.05$)。与术前相比,两组患者术后 12hVAS 评分升高,术后 24h、术后 48hVAS 评分下降($P<0.05$);与术后 12h 相比,两组患者术后 24h、术后 48hVAS 评分均下降,且术后 48hVAS 评分低于术后 24h($P<0.05$);实验组术后 12h、术后 24h、术后 48hVAS 评分均低于对照组($P<0.05$)。实验组鼻粘膜水肿 0 级患者数量显著高于对照组,鼻粘膜水肿 1 级患者数量显著低于对照组($P<0.05$);两组鼻粘膜水肿 2 级患者数量比较差异无统计学意义($P>0.05$);两组患者鼻中隔并发症总发生率比较差异无统计学意义($P>0.05$)。**结论:**相较于鼻腔填塞法,鼻中隔成形术中采用鼻中隔“8”字缝合法疗效显著,可减轻患者疼痛,改善患者鼻粘膜水肿情况,且不会增加并发症发生率,具有一定的临床应用价值。

关键词:鼻中隔成形术;鼻腔填塞法;鼻中隔“8”字缝合法;疗效;比较

中图分类号:R765.3 **文献标识码:**A **文章编号:**1673-6273(2019)06-1134-04

Comparative Study of Nasal Packing and Septum "8" Suture in Nasal Septum Plasty*

LI Gang, YAO Kun[△], ZHU Xuan-sheng, CAO Wei, YIN Zhi-li

(Department of Otolaryngology Head and Neck Surgery, Affiliated Fuyang Hospital of Anhui Medical University,

Fuyang, Anhui, 236000, China)

ABSTRACT Objective: To investigate the effect of nasal packing and septum "8" suture in nasal septum plasty. **Methods:** 60 patients with deviation of nasal septum who were scheduled to undergo septoplasty in our hospital from July 2017 to July 2018 were selected. The patients were divided into control group and experimental group by random number table, each 30. Two groups of patients underwent endoscopic septum plasty under nasal endoscope. The control group was treated with nasal packing, and the experimental group was treated with septum "8" suture. The clinical efficacy and nasal mucosal edema were compared between the two groups. Visual analogue pain score (VAS) was observed at different time points in the two groups, and postoperative complications of nasal septum were recorded in two groups of patients. **Results:** The total effective rate at 7d after operation in the experimental group was 96.67%(29/30), which was significantly higher than 80.00%(24/30) in the control group, the difference was statistically significant ($P<0.05$). Compared with preoperative, the VAS scores of the two groups increased at 12h after operation, the VAS scores decreased at 24h after operation and 48h after operation ($P<0.05$). Compared with 12h after operation, the VAS scores of the two groups decreased at 24h after operation and 48h after operation, and the VAS scores of 48h after operation were lower than that of 24h after operation ($P<0.05$). The VAS scores of 12h after operation, 24h after operation and 48h after operation in the experimental group were lower than those of the control group ($P<0.05$). The number of patients with grade 0 nasal mucosal edema in the experimental group were significantly higher than those in the control group, and the number of patients with grade 1 nasal mucosal edema were significantly lower than those in the control group ($P<0.05$). There were no significant differences in the number of patients with grade 2 nasal mucosal edema between the two groups ($P>0.05$). There was no significant difference in the incidence of nasal septal complications between the two groups ($P>0.05$). **Conclusion:** Compared with the nasal packing method, the "8" suture of nasal septum in nasal septum plasty is more effective, which can relieve the pain, improve the nasal mucosal edema, and do not increase the incidence of complications. It has certain clinical application value.

* 基金项目:安徽省卫生厅科研基金项目(2013xy127)

作者简介:李岗(1980-),男,本科,主治医师,从事耳鼻咽喉科学、慢性鼻窦炎、鼻中隔偏曲、鼻腔鼻窦恶性肿瘤方面的研究,

E-mail: ljuaiah@163.com

△ 通讯作者:姚昆(1970-),男,硕士,主任医师,从事耳鼻咽喉头颈科学、中耳胆脂瘤、慢性鼻窦炎、鼻中隔偏曲、喉癌方面的研究,

E-mail: uwxnkb@163.com

(收稿日期:2018-10-12 接受日期:2018-10-31)

Key words: Nasal septum plasty; Nasal packing; Septum "8" suture; Curative effect; Comparative

Chinese Library Classification(CLC): R765.3 **Document code:** A

Article ID: 1673-6273(2019)16-1134-04

前言

鼻中隔偏曲是指鼻中隔向一侧或两侧弯曲,引发局部突起,造成鼻窦、鼻腔功能障碍,是临床耳鼻咽喉科的多发病之一^[1-3]。临床主要表现为鼻塞、鼻出血、头痛等症状,该病好发于有鼻外伤史的患者,且与患者年龄及性别存在一定的联系^[4,5]。目前,临床针对该病的治疗仍以手术矫正为主,随着鼻内镜手术的广泛开展,鼻中隔成形术已成为当前国内外较为常见且成熟的手术,然而传统手术后所用的凡士林纱条或膨胀海绵填塞类鼻腔填塞法常给患者带来闷胀不适感,严重者可诱发鼻心反射,且取出填塞物时患者易再次产生痛感或出血现象,远远超过手术本身创伤带来的疼痛,给患者饮食、睡眠以及情绪都带来严重影响^[6-8]。而鼻中隔行“8”字缝合则可以免填塞,同时其可修复撕裂的粘膜和有效固定鼻中隔软骨。为了进一步验证鼻腔填塞法及鼻中隔“8”字缝合的疗效区别,本研究设置对照试验,现整理报道如下。

1 资料与方法

1.1 临床资料

选取我院于2017年7月~2018年7月期间收治的60例拟行鼻中隔成形术的鼻中隔偏曲患者。纳入标准:(1)所有患者均具有鼻中隔偏曲相关临床症状,如有明显鼻中隔偏曲,抵触周围组织,鼻塞、头痛、鼻出血及鼻中隔偏曲所致的中鼻甲外移、中鼻道引流狭窄等。(2)均经CT等临床影像学证实;(3)均符合手术指征;(4)术前未应用凝血酶及鼻喷激素等药物者;(5)患者及其家属知情本次研究并已签署同意书。排除标准:(1)手术治疗前1个月内存在感染史者;(2)合并有免疫功能异常者;(3)既往有鼻部手术史者;(4)合并有鼻部其他严重性疾病者。采用随机数字表法将患者分为对照组($n=30$)和实验组($n=30$),其中对照组男18例,女12例,年龄18~60岁,平均 (31.09 ± 4.72) 岁;体质指数 $20.8 \sim 25.6 \text{ kg/m}^2$,平均 $(22.51 \pm 1.08) \text{ kg/m}^2$ 。实验组男16例,女14例,年龄17~59岁,平均 (30.74 ± 5.37) 岁;体质指数 $21.3 \sim 25.4 \text{ kg/m}^2$,平均 $(22.48 \pm 0.73) \text{ kg/m}^2$ 。纳入患者一般资料比较无差异($P>0.05$),本次研究获得医院伦理学委员会批准。

1.2 治疗方法

所有患者均由同一名主刀医师及同一组手术团队完成手术,均行鼻内镜下鼻中隔成形术,术中仔细电凝止血,确认创面是否有活动性出血,两组术后均采用含有肾上腺素的生理盐水对手术腔进行冲洗,对照组术后止血采用鼻腔填塞法,将两块高分子止血海绵填塞于每侧鼻腔,并于术后2d取出鼻腔填塞物。而实验组则使用鼻中隔“8”字缝合法,患者鼻中隔选用4-0无损线缝合,采用自后向前的方式,具体如下:第1针于切口同侧中鼻甲前上方进入,穿透鼻中隔到达对侧,于穿出位置垂直向下约1cm穿透至对侧,于穿出位置向前向上直线距离约2cm处穿透至对侧,方式如前述,连续行此类“Z”型缝合6针,于切

口一侧鼻前庭处前端缝线打结,如图1所示。术后4d给予拆线处理,所有患者术后均给予布地奈德鼻喷剂治疗。

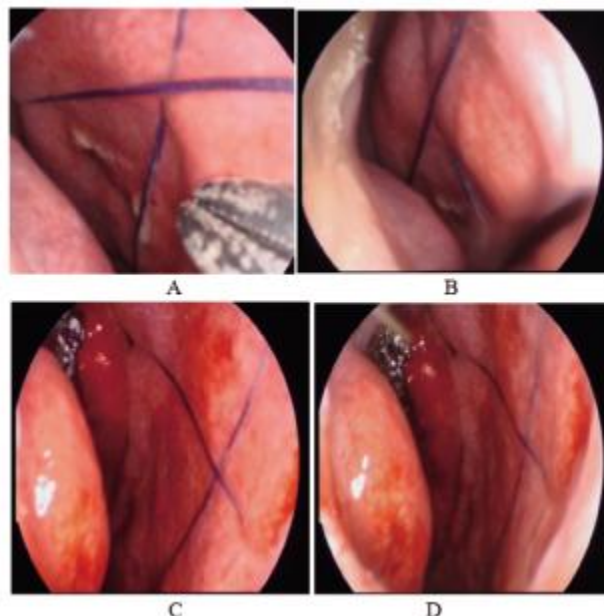


图1 鼻中隔“8”字缝合法术后第2d-5d患者恢复情况

Fig. 1 Recovery of patients with nasal septum "8" suture 2d-5d after operation

注:A:鼻中隔“8”字缝合法术后第2d,鼻内窥镜下见鼻中隔缝线在位,鼻腔粘膜无明显水肿,鼻中隔无血肿及穿孔;B:鼻中隔“8”字缝合法术后第3d,鼻内窥镜下见鼻中隔缝线在位,鼻腔内少许血迹,粘膜无水肿,鼻中隔无血肿;C:鼻中隔“8”字缝合法术后第4d,鼻内窥镜下见鼻中隔缝线在位,鼻腔内情况良好;D:鼻中隔“8”字缝合法术后第5d,鼻内窥镜下见鼻中隔缝线在位,未见鼻中隔血肿及穿孔。

Note: A: On the 2nd day after the "8" suture of nasal septum, nasal septum suture was in place under nasal endoscope, nasal mucosa was not evident edema, nasal septum was not hematoma and perforation; B: On the 3rd day after the "8" suture of the nasal septum, nasal septum suture was in place under nasal endoscope, there was little blood stain in the nasal cavity, no edema in the mucosa and no hematoma in the nasal septum; C: On the 4th day after the "8" suture of nasal septum, nasal septum suture was in place under nasal endoscope and the nasal cavity was in good condition; D: On the 5th day after the "8" suture of nasal septum, nasal septum suture was in place under nasal endoscope, and there was no hematoma or perforation of nasal septum.

1.3 观察指标

(1)疗效^①评价两组患者术后7d临床疗效,具体判定标准如下:显效:鼻中隔偏曲得到矫正,临床症状消失,切口愈合情况佳;有效:鼻中隔偏曲得到矫正,偶有鼻塞、头痛等临床症状出现,切口愈合情况较好;无效:术后鼻中隔偏曲矫正情况不理想,鼻腔通气改善程度一般,仍存在相关临床症状。总有效率=显效率+有效率。(2)疼痛情况于术前、术后12h、术后24h、术后48h采用视觉疼痛模拟评分法(Visual analogue scale, VAS)

^[10]评价患者疼痛情况,VAS 总分 1~10 分,其中 1 分表示无痛,10 分表示难以忍受的疼痛,分数越高,疼痛情况越严重。(3)鼻粘膜水肿情况 于术后 3d 观察两组患者鼻粘膜水肿发生情况,视严重程度分为以下三级^[11]:下鼻甲无水肿或轻度水肿(0 级)、下鼻甲中度水肿(1 级)、下鼻甲重度水肿(2 级)。(4)观察两组术后 7d 内鼻中隔并发症发生情况。

1.4 统计学方法

采用 SPSS20.0 处理数据,计量资料用均数 $\pm$ 标准差($\bar{x}\pm s$)

表示,采用 t 检验,计数资料以率(%)表示,采用 χ^2 检验,检验标准设置为 $\alpha=0.05$ 。

2 结果

2.1 两组患者临床疗效比较

实验组术后 7d 临床总有效率为 96.67%(29/30),高于对照组患者的 80.00%(24/30),差异有统计学意义($P<0.05$),详见表 1。

表 1 两组患者临床疗效比较 例(%)

Table 1 Comparison of clinical efficacy of two groups of patients n(%)

Groups	Effect	Good	Invalid	Total effective rate
Control group(n=30)	16(53.33)	8(26.67)	7(23.33)	24(80.00)
Experimental group(n=30)	27(90.00)	2(6.67)	1(3.33)	29(96.67)
χ^2				4.043
P				0.017

2.2 两组患者术后不同时间点 VAS 评分比较

两组患者术前 VAS 评分比较差异无统计学意义($P>0.05$);与术前相比,两组患者术后 12hVAS 评分升高,术后 24h、术后 48hVAS 评分下降($P<0.05$);与术后 12h 相比,两组

患者术后 24h、术后 48hVAS 评分下降,且术后 48hVAS 评分低于术后 24h ($P<0.05$);实验组术后 12h、术后 24h、术后 48hVAS 评分均低于对照组($P<0.05$);详见表 2。

表 2 两组患者术后不同时间点 VAS 评分比较($\bar{x}\pm s$,分)

Table 2 Comparison of VAS scores between two groups at different time points after operation($\bar{x}\pm s$, scores)

Groups	n	Preoperative	12h after operation	24h after operation	48h after operation
Control group	30	4.38 $\pm$ 0.82	6.43 $\pm$ 1.22*	3.39 $\pm$ 1.15* [#]	2.24 $\pm$ 1.15* ^{#&}
Experimental group	30	4.41 $\pm$ 0.78	5.41 $\pm$ 1.38*	2.53 $\pm$ 1.21* [#]	1.03 $\pm$ 0.54* ^{#&}
t	-	0.145	0.033	2.822	5.217
P	-	0.885	0.004	0.007	0.000

Note: compared with preoperative, * $P<0.05$; compared with 12h after operation, [#] $P<0.05$; compared with 24h after operation, [&] $P<0.05$.

2.3 两组患者术后鼻粘膜水肿、鼻中隔并发症情况比较

实验组鼻粘膜水肿 0 级患者数量显著高于对照组,鼻粘膜水肿 1 级患者数量显著低于对照组($P<0.05$);两组鼻粘膜水肿

2 级患者数量比较差异无统计学意义($P>0.05$);两组患者鼻中隔并发症总发生率比较差异无统计学意义($P>0.05$);详见表 3。

表 3 两组患者术后鼻粘膜水肿、鼻中隔并发症情况比较 例(%)

Table 3 Comparison of nasal mucosa edema and nasal septal complications after operation between the two groups n(%)

Groups	Nasal mucosa edema			Nasal septal complications				
	Grade 0	Grade 1	Grade 2	Hematoma	Abscess	Perforation	Nasal cavities	Complication rate
Control group	2(6.67)	22(73.33)	6(20.00)	2(6.67)	0(0.00)	0(0.00)	0(0.00)	2(6.67)
Experimental group	21(70.00)	7(23.33)	2(6.67)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
χ^2	25.452	15.017	2.308					2.069
P	0.000	0.000	0.359					0.367

3 讨论

鼻中隔偏曲主要病因为鼻中隔的组成骨发育不均衡,从而产生不同的张力曲线,致使诸骨压迫了中隔粘骨膜内的三叉神经末梢及伴随的植物神经,导致患者出现神经紊乱,引发鼻腔

功能障碍,给患者生活质量带来严重影响^[12-14]。目前手术矫正为治疗鼻中隔偏曲的唯一方式,当前鼻中隔成形术发展已较为成熟,但关于其术后治疗尚存在一定争议^[15,16]。鼻中隔成形术后常规行鼻腔填塞,其主要是减少血肿形成,促使双侧粘骨膜快速恢复,但越来越多的研究表明^[17-19],患者经鼻腔填塞后经常出现

头痛、鼻面部胀痛难忍等症状,严重影响患者饮食、休息,而且术后即使可将鼻腔填塞物抽取出,仍难以避免水肿的形成;同时鼻腔填塞压迫将促使鼻腔压力升高,不仅会引发患者头痛、鼻部痛等症状,还可增加穿孔的发生几率,预后一般。路承等人研究表明^[20],采用膨胀海绵和吸纳棉进行鼻腔填塞可有效止血,但纳吸棉更有利于减轻患者痛苦及改善症状程度。然而采用不同材料进行鼻腔填塞的方式也仍有一定的疗效提升空间。近些年来有学者认为^[21,22],鼻中隔偏曲成形术中行鼻中隔缝合合法可以减轻患者的术后痛苦,临床应用价值较高。故本研究就此展开探讨。

本研究结果显示,实验组术后临床总有效率显著高于对照组。提示鼻中隔“8”字缝合合法可进一步提高鼻中隔成形术后临床治疗效果。分析其原因,鼻中隔“8”字缝合合法可有效稳定鼻中隔软骨,修复撕裂黏膜效果更佳,同时可避免填塞物对鼻腔血管的神经压迫,减轻对鼻腔黏膜纤毛功能的影响,无须每日处理鼻腔内痂皮、分泌物,有利于患者术后迅速恢复,进一步提高治疗效果^[23-25]。本研究还显示,两组患者VAS评分于术后12h呈升高状态,随即于术后24h、术后48h呈下降状态,实验组术后12h、术后24h、术后48hVAS评分均低于对照组。表明鼻中隔“8”字缝合合法减轻患者术后疼痛效果更佳,且随时间推移,痛苦减轻更明显。VAS是国内外常用于评价患者主观疼痛度的常用量表,本次研究中使用鼻中隔“8”字缝合合法的患者疼痛感明显减轻,这与田卫卿等人研究结果一致^[26]。这主要是由于进行鼻腔填塞时,患者有强烈不适,尤其当抽出填塞物时,其疼痛感更为明显。而鼻中隔“8”字缝合合法缝合后不会对患者鼻腔造成压迫,且缝合中隔黏膜时可封闭整个中隔死腔,受力均匀,减少出血,从而可以减轻刺激性损伤,进而降低患者痛感^[27-29]。另实验组黏膜水肿情况与对照组比较有显著差异性,提示相较于鼻腔填塞法,鼻中隔“8”字缝合合法对患者黏膜损伤较轻,其可有效缩短术后黏膜恢复时间。而两组并发症发生率比较无差异,表明鼻中隔“8”字缝合合法安全性较好,不会增加不良反应发生率。值得注意的是,鼻中隔“8”字缝合合法对施术者要求较高,施术者需具有一定的鼻腔内操作技巧^[30]。

综上所述,鼻中隔成形术中采用鼻中隔“8”字缝合合法疗效确切,患者主观疼痛度明显减轻,鼻粘膜水肿情况得到明显改善,安全性较好,相比于传统鼻中隔术后鼻腔填塞,该方法值得推广应用。

参考文献(References)

- [1] 王新亮,李雅琼,范昕,等.鼻内镜下行鼻中隔矫正术对鼻腔鼻窦微创治疗的临床效果及意义[J].现代生物医学进展,2014,14(12): 2303-2305
- [2] Kaya M, Dağlı E, Kırat S. Does Nasal Septal Deviation Affect the Eustachian Tube Function and Middle Ear Ventilation?[J]. Turk Arch Otorhinolaryngol, 2018, 56(2): 102-105
- [3] Sapmaz E, Kavaklı A, Sapmaz HI, et al. Impact of Hard Palate Angulation Caused by Septal Deviation on Maxillary Sinus Volume [J]. Turk Arch Otorhinolaryngol, 2018, 56(2): 75-80
- [4] 薛志勇,李萍,刘芳,等.改良贯穿缝合合法在鼻中隔矫正术中的应用体会[J].中国耳鼻咽喉颅底外科杂志,2016,22(5): 407-409
- [5] Ozdogan F, Ozel HE, Esen E, et al. Nasal Septum and External Nasal Deformity Similarities in Monozygotic Twins and Paranasal Computed Tomography Analysis [J]. World J Plast Surg, 2018, 7(2): 253-255
- [6] 王大敏,李家勇,周卫平,等.鼻内镜下鼻中隔矫正术中黏膜缝合合法的临床研究[J].医学信息,2016,29(25): 231-232
- [7] Zhang L, Bai X, Li Z, et al. Improvement of Aesthetic and Nasal Airway in Patients With Cleft Lip Nasal Deformities: Rhinoplasty With Septal Cartilage Graft and Septoplasty[J]. Cleft Palate Craniofac J, 2018, 55(4): 554-561
- [8] Kim KS, Yeo NK, Kim SS, et al. Effect of Fentanyl Nasal Packing Treatment on Patients With Acute Postoperative Pain After Nasal Operation: A Randomized Double-Blind Controlled Trial [J]. Ann Otol Rhinol Laryngol, 2018, 127(5): 297-305
- [9] Celiker M, Cicek Y, Tezi S, et al. Effect of Septoplasty on the Heart Rate Variability in Patients With Nasal Septum Deviation [J]. J Craniofac Surg, 2018, 29(2): 445-448
- [10] Kersten P, White PJ, Tennant A. Is the pain visual analogue scale linear and responsive to change? An exploration using Rasch analysis [J]. PLoS One, 2014, 9(6): e99485
- [11] Kliger M, Stahl S, Haddad M, et al. Measuring the Intensity of Chronic Pain: Are the Visual Analogue Scale and the Verbal Rating Scale Interchangeable?[J]. Pain Pract, 2015, 15(6): 538-547
- [12] 修世国,胡玮,樊新,等.鼻中隔缝合与鼻腔填塞在鼻中隔成形术后的效果比较 [J]. 中华耳鼻咽喉头颈外科杂志, 2015, 50(12): 1035-1036
- [13] Bayrak S, Ustaoglu G, Demiralp KÖ, et al. Evaluation of the Characteristics and Association Between Schneiderian Membrane Thickness and Nasal Septum Deviation[J]. J Craniofac Surg, 2018, 29(3): 683-687
- [14] Ekinici A, Karataş D, Yetiş A, et al. Serum Oxidative Stress Levels in Patients with Nasal Septal Deviation[J]. Turk Arch Otorhinolaryngol, 2017, 55(3): 125-128
- [15] 朱嘉卫,曹守明,刘咏虹,等.鼻中隔矫正术后缝合合法关闭术腔30例[J].昆明医科大学学报,2015,36(7): 144-146
- [16] Sahin MS, Ozmen OA, Yalcin MU. Does Septoplasty Improve Heart Functions of Patients With Septum Deviation in Terms of Echocardiography Findings? [J]. J Craniofac Surg, 2017, 28(7): 1803-1805
- [17] Lawlor CM, Grant M, Levy J, et al. Neonatal nasal septal deviation: Two cases of successful early surgical intervention [J]. Ear Nose Throat J, 2017, 96(8): E20-E23
- [18] Yang G, Zhao H, Wang P, et al. Measurement of deformation rate in nasal septum deviation by three-dimensional computer tomography reconstruction and its application in nasal septoplasty endoscopic surgery[J]. Exp Ther Med, 2017, 14(2): 1519-1525
- [19] Wanzeler AMV, Renda MDO, de Oliveira Pereira ME, et al. Anatomical relation between nasal septum deviation and oropharynx volume in different facial patterns evaluated through cone beam computed tomography[J]. Oral Maxillofac Surg, 2017, 21(3): 341-346
- [20] 路承,马有祥,董保成,等.鼻内镜下鼻中隔成形术后应用纳吸棉和医用膨胀海绵的临床观察 [J]. 中国中西医结合耳鼻咽喉科杂志, 2013, 21(3): 184-186

(下转第1200页)

- IEEE Eng Med Biol Soc, 2013, (2013): 6671-6674
- [14] Liu B, Song Y, Jin L, et al. Silk structure and degradation[J]. Colloids and Surfaces B: Biointerfaces, 2015, 131: 122-128
- [15] Arasteh S, Kazemnejad S, Khanjani S, et al. Fabrication and characterization of nano-fibrous bilayer composite for skin regeneration application[J]. Methods, 2016, 99: 3-12
- [16] Sridhar S, Venugopal J R, Ramakrishna S. Improved regeneration potential of fibroblasts using ascorbic acid blended nanofibrous scaffolds [J]. Journal of Biomedical Materials Research Part A, 2015, 103(11): 3431-3440
- [17] Hodgkinson T, Yuan XF. Electrospun silk fibroin fiber diameter influences in vitro dermal fibroblast behavior and promotes healing of ex vivo wound models[J]. Tissue Eng, 2014, 5: 2041731414551661
- [18] 李丽,张印峰,李克,等.丝素蛋白作为真皮替代物移植后的组织学变化[J].中国组织工程研究与临床康复, 2010, 14(38): 7065-7068
- [19] 陆艳,赵霞,邵正中,等.多孔丝素材料组织相容性的初步研究[J].中国组织工程研究与临床康复, 2011, 15(34): 6364-6367
- [20] 李燕,周宙霖,卢涛,等.利用 HaCaT 细胞构建新型组织工程皮肤检测模型[J].武警医学, 2016, 27(07): 672-675
- [21] 刘雨. 装载促血管再生基因的丝素支架构建及其对真皮再生的影响[D]. 苏州大学硕士论文, 2015, 1-140
- [22] 吕国忠,周红梅,赵朋,等.体外培养表皮干细胞复合高分子支架原位修复深度烧伤创面的研究[J].中华损伤与修复杂志(电子版), 2011, 06(01): 20-32
- [23] 詹葵华.血管生成与新生组织生长的范式研究[D].苏州大学学位论文, 2012, 1-263
- [24] 胡晓文.纳米银--猪脱细胞真皮基质敷料在深Ⅱ° 烧伤创面应用的临床研究[D]. 大连医科大学硕士学位论文, 2016, 1-42
- [25] Inpanya P, Faikrue A, Ounaron A, et al. Effects of the blended fibroin/aloe gel film on wound healing in streptozotocin-induced diabetic rats[J]. Biomed Mater, 2012, 7: 035008
- [26] Chomachayi MD, Solouk A. Electrospun silk-based nanofibrous scaffolds: fiber diameter and oxygen transfer[J]. Prog Biomater, 2016, 5: 71-80
- [27] Shi L, Yang N, Zhang H, et al. A novel poly (γ -glutamic acid)/silk-sericin hydrogel for wound dressing: Synthesis, characterization and biological evaluation[J]. Mater Sci Eng C Mater Biol Appl, 2015, 48: 533-540
- [28] 张芳.生物表面活性剂诱导丝素蛋白水凝胶的研究[D]. 苏州大学硕士论文, 2015, 1-72
- [29] 曹丽楠,徐保来.医用丝素蛋白皮肤再生膜的生物相容性评价[J].中国组织工程研究, 2016, 20(25): 3653-3658
- [30] 尤欣然. 人胎盘源间充质干细胞与仿生丝蛋白材料在皮肤组织工程中的运用研究[D].苏州大学硕士论文, 2015, 1-61

(上接第 1137 页)

- [21] Serifoglu I, Oz j̇i, Damar M, et al. Relationship between the degree and direction of nasal septum deviation and nasal bone morphology [J]. Head Face Med, 2017, 13(1): 3
- [22] Goergen MJ, Holton NE, Grünheid T. Morphological interaction between the nasal septum and nasofacial skeleton during human ontogeny[J]. J Anat, 2017, 230(5): 689-700
- [23] Yeşiloğlu N, Şirinoğlu H, Yıldız K, et al. Defect closure with "8-shaped crisscross tensile suture" technique [J]. J Surg Res, 2015, 193(2): 963-968
- [24] 韦亮军,姚昆.鼻内镜下鼻中隔偏曲矫正术后“8”字缝合鼻中隔面的临床观察 [J]. 中国中西医结合耳鼻咽喉科杂志, 2017, 25(2): 148-149
- [25] Bali ZU, Sır E, Ahmedov A, et al. A novel method to prevent complications of nasal osteotomy: mattress suture which traverses lateral walls and septum [J]. Kulak Burun Bogaz İhtis Derg, 2015, 25 (6): 324-328
- [26] 田卫卿.黏膜缝合与鼻腔填塞法治疗鼻中隔偏曲效果对比[J].河南医学研究, 2017, 26(10): 1821-1822
- [27] 农丰靖.缝合关闭术腔在鼻中隔矫正术后的效果研究[J].西南国防医药, 2017, 27(2): 164-166
- [28] Kuboki A, Yanagi K, Nakayama T, et al. Simple suturing of the nasal septum using the Maniceps septum stitch device [J]. J Laryngol Otol, 2015, 129(6): 591-594
- [29] Bohluhi B, Motamedi MH, Varedi P, et al. Management of perforations of the nasal septum: can extracorporeal septoplasty be an effective option?[J]. J Oral Maxillofac Surg, 2014, 72(2): 391-395
- [30] Rasic I, Pegan A, Kosec A, et al. Use of Intranasal Flaring Suture for Dysfunctional Nasal Valve Repair[J]. JAMA Facial Plast Surg, 2015, 17(6): 462-463