

梗阻的 37%。因此我们对 60 例患者均放置胃管或鼻肠管进行胃肠减压治疗。

CEA、CA19-9 在肿瘤监测中的作用, 早已广为国内外学者所报道和肯定, 尤其是作为消化道肿瘤预后重要的检测指标^[7-8]。本组统计结果也证实了 CEA、CA19-9 在监测胃肠道肿瘤预后中的作用, 其阳性率与有关报道大致相同^[9]。将原发肿瘤手术后并发肠梗阻的肿瘤标志物以及区域性动脉灌注小剂量化疗后所测数据进行配对比较更能准确反映肿瘤复发情况和治疗效果^[10]。如何治疗才能更好地提高晚期消化道梗阻患者生活质量和生存时间显得尤为重要。本研究中, 小剂量化疗药进行区域性动脉灌注治疗恶性消化道梗阻组具有较好的疗效和安全性, 能明显延长患者的生存时间和提高生活质量, 因此区域性动脉灌注小剂量化疗药作为姑息性化疗是治疗晚期消化道肿瘤的重要手段之一, 很适合临床的应用和推广。

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·临床研究 Clinical research·

球囊扩张成形术在小儿食管狭窄中的应用

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【摘要】目的 总结球囊扩张成形术在小儿食管狭窄治疗中的应用, 评价其安全性、有效性和影响疗效的因素。**方法** 回顾性分析 30 例小儿食管狭窄行球囊扩张成形术的临床资料, 其中先天性食管闭锁术后吻合口狭窄 20 例, 先天性食管下段狭窄 5 例, 误服强碱食管腐蚀伤后狭窄 5 例。按扩张次数将患儿分为 3 组, A 组 18 例, 行 1 次球囊扩张, 均为先天性食管闭锁术后吻合口狭窄患儿; B 组 7 例, 行 2 ~ 3 次球囊扩张, 主要为先天性食管狭窄和先天性食管闭锁术后吻合口狭窄患儿; C 组 5 例, 行 4 ~ 6 次球囊扩张, 为食管化学性烧伤患儿。扩张前行上消化道造影检查, 明确病灶部位及狭窄程度, 分别使用不同规格球囊进行扩张; 扩张后复查造影进行对照分析了解扩张效果, 分析各组间病因、食管狭窄长度和狭窄食管直径对扩张效果的影响。**结果** 30 例患儿共接受 62 次扩张, 平均每例扩张 2.1 次(1 ~ 6 次)。27 例患儿扩张后呕吐症状明显改善, 体重明显增加; 3 例化学性烧伤患儿疗效不佳, 转而行手术治疗, 全部

患儿未发生穿孔、呕血或黑便等并发症。A、B、C 3 组患儿食管扩张前狭窄段平均直径分别为: 4.0 mm (3.0 ~ 5.0), 4.3 mm (2.5 ~ 6.0) 和 4.4 mm (4.0 ~ 5.0), 平均狭窄段长度分别为 (1.18 ± 0.59) cm, (1.53 ±

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0.49)cm 和 (7.50 ± 2.89) cm。3 组扩张成功率分别为 18/18、7/7 和 2/5。C 组患儿食管狭窄段长度显著大于其他两组, $P < 0.05$ 。C 组患儿扩张有效率显著低于 A、B 组 ($P < 0.01$)。结论 球囊扩张成形术治疗小儿食管狭窄操作简便, 安全有效, 可以有效地解除患儿的食管狭窄症状, 是治疗小儿食管狭窄的首选方法。食管闭锁术后吻合口狭窄和先天性食管狭窄患儿扩张有效率高; 化学性烧灼伤患儿需要反复多次扩张和再手术。

【关键词】 儿童; 食管狭窄; 球囊扩张成形术

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The application of balloon esophagoplasty in treating esophageal stenosis in pediatric patients YIN Chuan-gao, WANG Song, WANG Chang, LI Xu, WANG Yue. Medical Imaging Center, Anhui Provincial Children's Hospital, Hefei, Anhui Province 230051, China

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【Abstract】 Objective To summarize the application of balloon esophagoplasty in treating pediatric esophageal stenosis, to assess its safety and effectiveness, and to discuss the factors influencing the therapeutic results. **Methods** A total of 30 pediatric patients with esophageal stenosis were enrolled in this study. Balloon esophagoplasty treatment was carried out in the 30 cases. The clinical data were retrospectively analyzed. The causes of esophageal stenosis included esophageal anastomotic stenosis following surgery for congenital esophageal atresia ($n = 20$), congenital lower esophageal stricture ($n = 5$) and esophageal stricture due to strong alkali corrosion ($n = 5$). According to the performed times of the procedure, the patients were divided into three groups. Group A ($n = 18$): balloon esophagoplasty was employed only once and all patients suffered from esophageal anastomotic stenosis following surgery for congenital esophageal atresia. Group B ($n = 7$): 2 - 3 times of balloon esophagoplasty were performed and the patients suffered from congenital esophageal stricture or from esophageal anastomotic stenosis following surgery for congenital esophageal atresia. Group C ($n = 5$): 4 - 6 times of balloon esophagoplasty had to be carried out and the patients suffered from esophageal chemical injury. Before balloon dilatation barium meal examination of upper digestive tract was conducted to clarify the location and extent of the stricture, based on which suitable balloon was selected for the esophagoplasty procedure. After the balloon esophagoplasty, esophageal barium examination was repeated to check the therapeutic efficacy. The results were compared between each other of the three groups. **Results** A total of 62 times of balloon esophagoplasty procedure were carried out in the 30 patients, with a mean of 2.1 times (range 1 - 6 times). After the treatment obvious improvement of vomiting and an increase of body weight were observed in 27 patients. The therapeutic results were poor in three children who had esophageal stricture caused by chemical injury, and surgery had to be carried out in them. No severe complications such as esophageal perforation, hematemesis or tarry stool occurred. The preoperative esophageal diameters of group A, B and C were 4.0 mm (3.0 - 5.0 mm), 4.3 mm (2.5 - 6.0 mm) and 4.4 mm (4.0 - 5.0 mm) respectively, and the mean lengths of the stenotic segment in group A, B and C were (1.18 ± 0.59) cm, (1.53 ± 0.49) cm and (7.50 ± 2.89) cm respectively. The success rates of esophageal dilatation of group A, B and C were 100% (18/18), 100% (7/7) and 40% (2/5) respectively. The length of the stricture segment in group C was significantly longer than that in group A and group B ($P < 0.05$), and the success rates of esophageal dilatation of group C was significantly lower than that in group A and group B ($P < 0.01$). **Conclusion** For the treatment of esophageal stenosis in pediatric patients, balloon esophagoplasty is simple, safe and effective. This technique can quickly and effectively relieve the clinical symptoms of esophageal stenosis. Therefore, it should be recommended as the treatment of first choice. This therapy carries higher success rate for congenital esophageal stricture and esophageal anastomotic stenosis following surgery for congenital esophageal atresia, although many times of procedure or even surgery may be needed for the pediatric patients who have suffered from esophageal stricture caused by chemical injury. (J Intervent Radiol, 2014, 23: 1083-1088)

【Key words】 child; esophageal stenosis; balloon esophagoplasty

小儿食管狭窄以良性疾病为主,其病因主要包括先天性食管闭锁术后吻合口狭窄、先天性食管狭窄、化学烧伤后引起的食管狭窄等。球囊扩张成形术是小儿食管良性狭窄的首选治疗手段。本文总结我院自 2005 年以来 30 例球囊扩张治疗食管狭窄患儿的经验,分析球囊扩张成形术的疗效及影响因素。

1 材料与方法

1.1 临床资料

回顾性分析我院 2005 年 1 月—2013 年 7 月行球囊扩张成形术治疗食管狭窄患儿 30 例,其中男 23 例,女 7 例。年龄 1 个月~12 岁,平均 14 个月,其中 6 月龄以下 24 例,6 个月和以上 6 例。先天性食管闭锁术后吻合口狭窄 20 例,先天性食管下段狭窄 5 例,误服强碱食管腐蚀伤后狭窄 5 例。30 例患儿临床表现为进食硬物困难伴反复呕吐,呕吐物不含胆汁;其中 5 例误服工业碱,2 周后出现吞咽困难,并进行性加重。30 例患儿共接受了 62 次扩张,平均每例扩张 2.1 次(1~6 次)。按扩张次数将患儿分为 3 组,A 组 18 例,行 1 次球囊扩张成形术;均为先天性食管闭锁术后吻合口狭窄患儿;B 组 7 例,行 2~3 次球囊扩张成形术,主要为先天性食管狭窄和先天性食管闭锁术后吻合口狭窄患儿;C 组 5 例,行 3 次以上球囊扩张成形术,为食管化学性烧伤患儿。扩张前行上消化道造影检查,明确病灶部位及狭窄程度,分别使用不同规格球囊进行扩张。

1.2 治疗方法

1.2.1 术前准备 做好血常规、凝血 4 项、X 线胸片、肝肾功能及心电图等检查。术前禁食禁水 4 h,做好与患儿家长或监护人的沟通,让患儿家长或监护人了解此项技术的临床价值及术中、术后可能出现的意外情况或并发症,签署手术知情同意书。婴幼儿不能配合的需在全麻气管插管下进行的,应备好氧气、吸引器、监护仪和各种急救器材、药品等。30 例患儿术前均行上消化道造影检查,明确狭窄段的部位、形态和长度以及狭窄段后方食管宽度(一般球囊直径约为狭窄段后方食管最大宽度的 1.2 倍,4 岁以下儿童球囊直径一般不超过 18 mm^[1])。选择直径 6 mm × 30 mm ~ 20 mm × 40 mm 球囊导管中的 1 支,5 F 直型导管或 Cobra 导管 1 支,直径 0.035 英寸超滑导引导丝(长 150 cm)及超滑超硬交换导丝(长 180 cm)各 1 支,三通管一只。

1.2.2 球囊扩张方法 患儿取仰卧位,头偏向右侧

不能配合的小儿在静吸复合全麻气管插管后,在透视下经口腔(婴幼儿可经鼻腔)送入 5 F 直型导管或 Cobra 导管及导引导丝,越过狭窄段后,将导管固定,应用导丝交换技术送入超滑超硬交换导丝,退出导管固定好交换导丝,再送入球囊导管,通过狭窄段,并将球囊中部置于病变最狭窄处,用 20 ml 注射针筒向球囊内注入对比剂,透视下根据狭窄程度,适当加压,开始时可见球囊中部呈“哑铃”状狭窄,加压使球囊逐渐扩张,狭窄段逐渐变浅直至消失。用三通管维持压力 5~10 min 后,抽出球囊内对比剂,减压 3~5 min 后再注入对比剂;连续重复前面扩张步骤 3 次,整个操作过程约 30 min。确认无其他部位狭窄后,抽出球囊内对比剂,将球囊退至狭窄段近端,经导管注入适量对比剂观察狭窄段扩张效果,同时了解有无消化道穿孔等并发症,随后退出导管、导丝。待患儿麻醉苏醒后送至病房。扩张后禁食水 24 h,24 h 后半流质饮食,48 h 后常规饮食。在扩张 1 周后行上消化道造影,根据狭窄段情况决定是否需要再次扩张治疗。

1.3 统计学方法

运用 SPSS13.0 软件进行统计分析,计量资料以 $\bar{x} \pm s$ 表示。三组间患儿的平均扩张狭窄段长度采用方差分析,计算 F 值,以 $P < 0.05$ 为各组均数差别有统计学意义。扩张有效率以 χ^2 检验法计算,以 $P < 0.05$ 为差异有统计学意义。

2 结果

30 例患儿术前均行上消化道造影检查,明确病灶部位,测量狭窄段的直径及长度,扩张后 1 周再行上消化道造影,测量狭窄段的直径及长度。术后均行 6 个月~2 年的随访,本组结果评价以患儿随访期间能进食半流质或固体饮食、连续 3 个月不需要再扩张为扩张有效。A 及 B 组共 25 例,主要为先天性食管狭窄(见图 1)和先天性食管闭锁术后吻合口狭窄(见图 2)患儿,行 1~3 次球囊扩张后效果满意,有效率为 100%,C 组 5 例,均为食管化学性烧伤(见图 3)患儿,仅 2 例球囊扩张后效果满意,另 3 例经多次球囊扩张后,仍不能正常进食,后转外科行结肠代食管手术治愈。

比较 3 组患儿球囊扩张治疗情况,3 组患儿平均狭窄段直径无显著性差异;3 组患儿平均扩张次数显著不同。3 组患儿中,以 C 组患儿(均为化学性烧伤病例)扩张次数最多,效果不理想。平均狭窄段长度 A、B 两组间无显著差异,与 C 组比较,经方

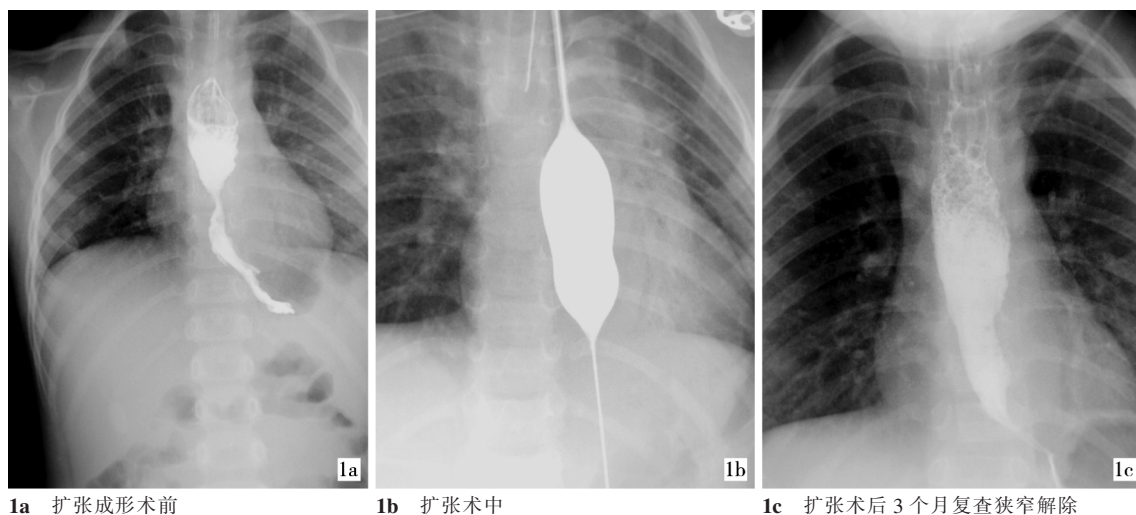


图 1 食管先天狭窄球囊导管扩张术成形术前、术后图像

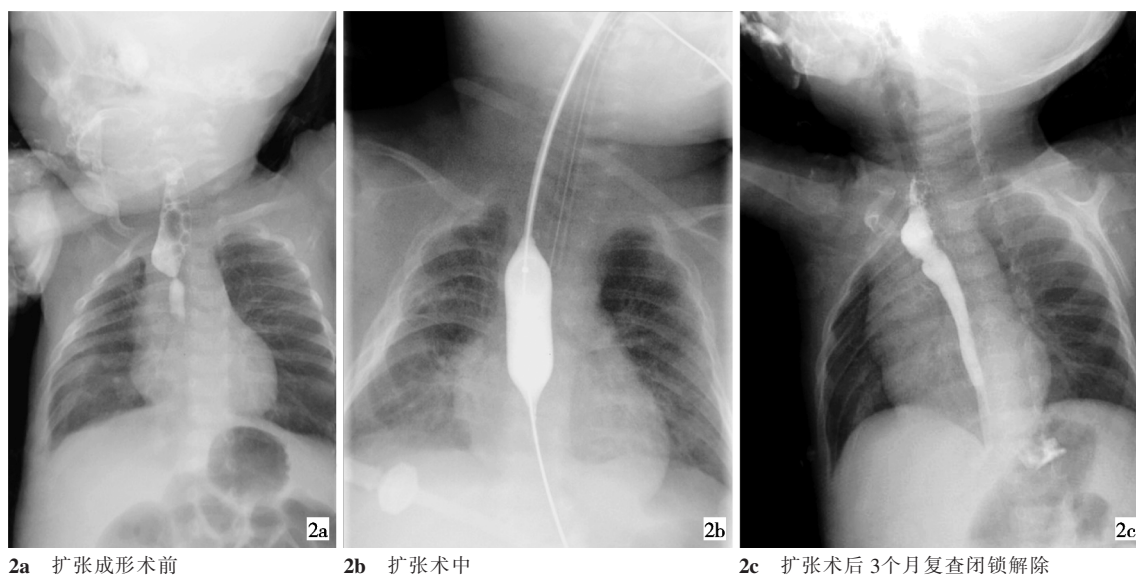


图 2 食管闭锁术后吻合口狭窄球囊导管扩张术成形术前、术后图像

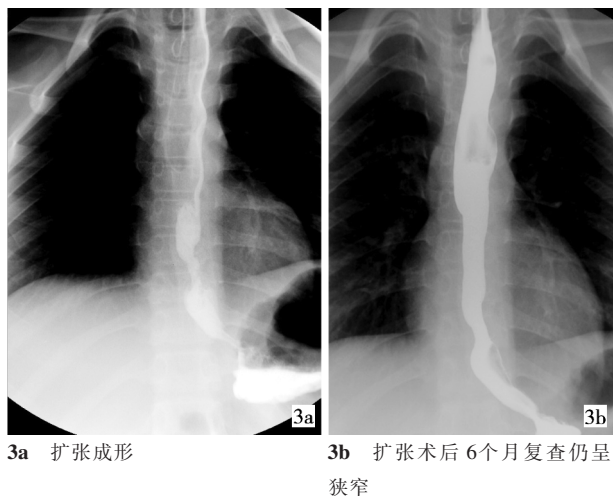


图 3 化学烧灼伤食管狭窄球囊导管扩张术成形术前与术后图像

差分析, $F = 53.48, P < 0.01$, 差异有统计学意义; 3 组患儿扩张有效率比较, A 和 B 组有效率显著高于 C

组, $\chi^2 = 16.67, P < 0.01$, 差异有统计学意义。见表 1。

3 讨论

小儿食管良性狭窄是小儿外科较常见疾病, 尤其是先天性食管闭锁术后吻合口狭窄发生率为 50%^[2-3], 治疗上过去常采用外科手术的方法, 但手术创伤较大, 并发症多, 体质虚弱患儿不能耐受^[4]; 而球囊扩张治疗因其创伤小, 并发症少, 操作简便, 可多次重复, 且效果明显等特点, 现已逐渐代替外科手术治疗成为首选的治疗方法。

对于先天性食管肌性狭窄患儿, 诊断明确后即可进行球囊扩张治疗; 对于先天性食管闭锁术后吻合口狭窄及化学性烧灼伤的患儿, 球囊扩张的时间以手术后 3 ~ 4 周为宜。过早扩张由于初期瘢痕组织脆弱, 易发生穿孔; 过晚则由于瘢痕组织老化, 不易扩张。对于 1 次扩张效果欠佳者, 可行多次扩张

表 1 3 组患儿食管狭窄球囊扩张术成形术情况比较

组别	例数	平均扩张次数	扩张前狭窄段直径/mm	扩张后狭窄段直径/mm	狭窄段长度/cm	扩张有效率
A	18	1.0(1)	4.0(3.0 ~ 5.0)	13.6(12.0 ~ 16.0)	1.18 ± 0.59 ^a	100(18/18)
B	7	2.45(2 ~ 3)	4.3(2.5 ~ 6.0)	13.5(12.0 ~ 16.0)	1.53 ± 0.49 ^a	7/7
C	5	5.4(4 ~ 6)	4.4(4.0 ~ 5.0)	8.5(8.0 ~ 12.0)	7.50 ± 2.89	2/5

^a 与 C 组比较, $F = 53.48, P < 0.01$, ^b 与 A 和 B 比较, $\chi^2 = 16.67, P < 0.01$

治疗,其间隔时间最初为 1 ~ 2 周,以后可根据患儿症状的改善,逐渐延长时间^[5-6]。用于小儿食管狭窄治疗的球囊直径一般为 6 ~ 20 mm。对于首次治疗的婴幼儿,球囊直径不能太大,以 6 ~ 12 mm 为宜。球囊直径太小,扩张后由于瘢痕组织回缩,效果往往不佳;球囊直径太大,则容易损伤消化道黏膜,引起出血甚至穿孔。

球囊扩张治疗前,要充分了解患儿病情,积极做好术前准备工作,根据造影检查情况选择合适直径和长度的球囊;术中起始压力不要太大,以 0.5 个大气压为宜,后逐渐加压,直至球囊完全扩张;动作要轻柔,避免损伤消化道黏膜,注意控制好球囊位置,将球囊固定在病变最狭窄处,如球囊有移位,需将球囊内对比剂抽出,重新将球囊置于最狭窄处再行扩张。同时应密切注意患儿呼吸情况,若有呼吸困难,应立即释放球囊压力,去除气道受压,必要时可给予吸氧和短暂休息^[5]。乔中伟等^[7]报道在 45 次球囊扩张中有 5 次因在扩张中出现呼吸困难而失败。我们吸取了他们的经验,对不能配合的患儿尤其是婴幼儿必须在全麻下进行,插好气管插管,未出现因呼吸困难而治疗失败的病例。

不同病因引起的食管狭窄,其扩张的效果不尽相同^[8]。单纯先天性食管闭锁术后吻合口狭窄患儿只有在进食困难、造影证实有吻合口狭窄(直径小于 5 mm)的情况下才进行扩张,不需做常规术后预防性扩张治疗^[9];且一般在扩张 1 ~ 2 次后症状明显改善或消失。其扩张效果较好,本组 20 例有效率达 100%,与文献报道观点一致。先天性食管狭窄的患儿术前可行 CT 或 MR 检查,了解狭窄部位是肌性狭窄还是软骨狭窄,如是软骨性狭窄,扩张无效,需要手术切除;如是肌性狭窄,可进行扩张治疗,但因狭窄部位的纤维索条较吻合口瘢痕组织坚硬,需要循序渐进的扩张,才可能获得满意的效果,本组 5 例术前诊断均为肌性狭窄,扩张 2 ~ 3 次后效果均满意。化学性烧灼伤引起的食管狭窄扩张效果较差,与病变长度密切相关,有文献报道食管狭窄段小于 80 mm 者,其扩张有效率为 88%,食管狭窄段大于 80 mm 者,其扩张有效率为 25%左右。本组病例中,化学性烧灼伤患儿 5 例,2 例病变长度小于

80 mm,通过多次扩张后恢复正常饮食;而另 3 例病变长度均大于 80 mm,经连续多次扩张,症状仍不能得到缓解,后经结肠代食管手术治愈,与文献报道不尽相同^[10]。

本组患儿未出现出血、穿孔等并发症。由于是在透视下直接操作,可以很清楚地观察到整个食管的情况,不容易出现胃镜直视下球囊扩张时误将穿孔部位当作狭窄口进行扩张的情况^[11-12]。随着扩张技术的日臻完善,透视下操作时间大大缩短,患儿接受 X 线剂量越来越少。总之,透视下球囊扩张成形术治疗小儿食管良性狭窄是一种可靠、有效、安全的治疗方法,目前已经成为治疗小儿食管良性狭窄的首选方法。

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• 临床研究 Clinical research •

临床不能触及乳腺病变影像引导下导丝定位手术切检的研究

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【摘要】 目的 评价临床不能触及乳腺病灶影像引导下放置钩丝定位引导手术切检的有效性及安全性。**方法** 回顾性分析 61 例临床触诊阴性而乳腺钼靶 X 线或 B 超显示的微小病灶诊治过程。其中 32 例采用乳腺钼靶 X 线定位下穿刺, 29 例采用 B 超定位下穿刺, 留置导丝于微小病灶区, 引导手术将病灶切除活检。**结果** 32 例钼靶穿刺引导均一次性定位成功, 定位满意率 93.8%, 病灶完整切除。穿刺定位平均时间 15.6 min, 平均摄片 5 次。29 例 B 超穿刺引导, 所有病灶均完整切除, 术中发现导丝均位于病灶内。所有患者均未出现导丝移位、气胸、大出血等并发症。**结论** 影像引导穿刺钩针定位简单易行, 是诊治临床不能触及乳腺病变安全、有效的方法。

【关键词】 临床不能触及乳腺病变; 钩针; 定位; 乳腺 X 线摄影; 超声

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Clinical application of imaging-guided hook wire-localized surgical biopsy in diagnosing impalpable breast lesions LIU Lin, ZHOU Qing-hua, WANG Zhong-min, LU Jian, ZHANG Li-yun. Department of Radiology, Affiliated Ruijin Hospital Luwan Branch, School of Medicine, Shanghai Jiaotong University, Shanghai 200020, China

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【Abstract】 Objective To assess the efficacy and safety of imaging-guided hook wire-localized surgical biopsy in diagnosing impalpable breast lesions. **Methods** A total of 61 female patients, who had micro-lesions on mammography or ultrasonography but had negative mammary palpation, were enrolled in this study. Of the 61 patients, imaging-guided hook wire-localized puncturing biopsy was carried out in 32 and ultrasound-guided puncturing biopsy was performed in 29. After puncturing, the hook wire was left in the tiny lesion region to guide the surgical excision biopsy. The clinical results were retrospectively analyzed. **Results** Mammography-guided hook wire localization was successfully performed with single procedure in all 32 patients, the satisfaction of localization was 93.75%, and the lesions were completely removed. The mean time for puncturing localization was 15.6 minutes, and the mean radiography films taken for each case was five. In 29 patients receiving ultrasound-guided puncturing biopsy, the lesions were totally excised, and the operation showed that the hook wire was within the lesion in all cases. No major complications such as displacement of guide wire, pneumothorax, massive hemorrhage, etc. occurred. **Conclusion** Image-guided hook wire-localized surgical biopsy is technically simple and easily-manipulated. It is

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