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直肠腔内超声动态观察肛瘘术后伤口愈合及临床分析

林丽晴¹, 邹贤军², 唐迎春², 李翔鹏¹, 向新¹

(武汉市第八医院 1. 超声科; 2. 肛肠科, 武汉 430010)

[摘要] 目的: 研究直肠腔内超声动态观察肛瘘术后伤口愈合情况, 以为临床诊治提供有用信息。方法: 回顾性分析2014年10月至2018年12月期间接受手术治疗的200例肛瘘患者临床资料, 依据术后是否使用直肠腔内超声分成对照组(80例)与实验组(120例)。实验组患者手术前后开展直肠腔内超声检查, 对患者术后伤口愈合效果进行动态观察, 参照观察结果为临床指导进一步提供参考; 对照组患者术后未开展直肠腔内超声检查, 根据临床医师的经验明确是否需要进一步开展处理。结果: 实验组患者术后瘘管内口处理彻底检出率、瘘管主管处理彻底检出率高于对照组, 假性愈合、支管/脓腔残留检出率也有所提高, 差异有统计学意义($P < 0.05$); 相较于对照组的(9.6±1.2)d, 实验组患者术后伤口愈合时间缩短为(6.8±2.0)d, 差异有统计学意义($P < 0.05$); 实验组患者术后愈合延迟、疤痕感染、肛瘘复发发生率低于对照组, 差异有统计学意义($P < 0.05$)。结论: 通过直肠腔内超声动态观察肛瘘术后伤口愈合情况, 分析超声影像学表现, 能为临床后期制定诊疗方案提供指导, 降低患者术后肛瘘复发风险, 提高患者术后生活质量。

[关键词] 直肠腔内超声; 动态观察; 肛瘘; 术后伤口愈合; 影像学

Intrarectal ultrasound dynamic observation of wound healing after anal fistula and clinical analysis

LIN Liqing¹, ZOU Xianjun², TANG Yingchun², LI Xiangpeng¹, XIANG Xin¹

(1. Department of Ultrasound; 2. Department of Anorectal, Eighth Hospital of Wuhan, Wuhan 430010, China)

Abstract **Objective:** To study the dynamic rectal cavity ultrasound observation of wound healing after anal fistula, in order to provide information for clinical diagnosis and treatment. **Methods:** The clinical data of 200 anal fistula patients who underwent surgical treatment in our hospital from October 2014 to December 2018 were retrospectively divided into 80 cases in the control group and 120 cases in the experimental group according to whether postoperative intrarectal ultrasound was used. The patients in the experimental group carried out intrarectal ultrasound examination before and after the operation, and dynamically observed the wound healing effect of the patients. The observation results provided further reference for clinical guidance; the patients in the control group did not carry out intrarectal ultrasound examination after surgery, according to the clinician's Experience

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通信作者 (Corresponding author): 邹贤军, Email: zoudoctor@126.com

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determines whether further processing is required. **Results:** In the experimental group, the complete detection rate of postoperative fistula internal treatment and the total detection rate of the fistula supervisor were higher than those in the control group. The rate of pseudohealing and branch/pus cavity residual detection also increased, the difference was statistically significant ($P<0.05$); compared with (9.6 ± 1.2) d of the control group, the wound healing time of the experimental group was shortened to (6.8 ± 2.0) d, the difference was statistically significant ($P<0.05$); the experimental group of patients The incidence of delayed healing, scar infection, and recurrence of anal fistula was lower than that of the control group, and the difference was statistically significant ($P<0.05$). **Conclusion:** The dynamic observation of wound healing after anal fistula through intrarectal ultrasound and analysis of ultrasound imaging can provide guidance for the diagnosis and treatment plan in the late clinical period, reduce the risk of recurrence of anal fistula after operation, and improve the quality of life of patients.

Keywords intrarectal ultrasound; dynamic observation; anal fistula; postoperative wound healing; imaging

肛瘘作为临床常见的、多发性肛肠科疾病,好发于中青年群体,临床表现为肿块、流脓、瘙痒及肿痛等症状,临床治疗多以手术为主,能获得良好的临床疗效^[1]。但因患者的个体差异及伴有的基础疾病产生的影响,加之肛管直肠的周围存在众多腔隙,组织表现疏松,且瘘道非均一的单一直管,导致肛瘘术后创面愈合较为迟缓,易出现愈合瘢痕化及复发感染等状况,影响患者预后^[2-3]。肛管直肠腔内超声检查作为新型临床诊断技术,被逐渐应用于临床诊断直肠与其周围疾病,能对瘘管主管及支管数目、具体走向进行明确,帮助医师了解内口位置,进而为临床早期发现、诊断及治疗肛肠疾病提供指导^[4]。基于此,本研究通过对直肠腔内超声动态观察的肛瘘术后创口愈合、周围组织改变情况进行分析,以期为临床判定创面愈合效果提供依据。

1 对象与方法

1.1 对象

选择2014年10月至2018年12月期间于武汉市第八医院(以下简称本院)接受手术治疗的200例肛瘘患者作为观察对象,依据术后是否使用直肠腔内超声分成对照组80例、实验组120例。对照组中男51(63.8%)例,女29(36.3%)例,年龄20~75(43.7 ± 11.4)岁;依照瘘管和肛门括约肌相关解剖关系开展Parks分型:45例(56.3%)为括约肌间肛瘘,12例(15.0%)为括约肌上肛瘘,7例(8.8%)为括约肌外肛瘘,16例(20.0%)为经括约肌肛瘘。实验组中男84例(70.0%),女36例(30.0%),年龄20~73(43.2 ± 11.8)岁,依照瘘管和肛门括约肌相关解剖关系开展Parks分

型:69例(57.5%)为括约肌间肛瘘,17例(14.2%)为括约肌上肛瘘,11例(9.2%)为括约肌外肛瘘,23例(19.2%)为经括约肌肛瘘。纳入标准:所有纳入对象全部通过临床检查明确为肛瘘,并均接受手术治疗^[5];无严重性心、肝、肾等重要脏器疾病;无凝血功能障碍。排除标准:排除妊娠期、哺乳期女性,排除术前伴有感染、传染性疾病、恶性肿瘤患者^[6]。两组患者性别、年龄、Parks分型分布均衡,差异无统计学意义($P>0.05$),存在可比性。本研究已获得本院医学伦理委员会审核批准,患者及其家属均签署知情同意书。

1.2 方法

1)实验组患者在术前及术后10 d开展直肠腔内超声相关检查,具体操作如下:超声检查前清洁肠道,帮助患者采用左侧卧位,实施常规的肛门视诊、指诊;使用丹麦产的BK肛肠三维超声诊断仪,将三维直肠腔内探头放入内置耦合剂的避孕套内,套的顶端再涂抹少许耦合剂起润滑作用,轻柔而缓慢置入患者的肛管腔内,在观察到肛管与肛周相关组织结构的同时,对探头的聚焦深度进行适当调节,使病变处于超声扫查的区域内,进而获得肛管超声三维立体图像。同时,建立患者的图像资料库,采用胸膝卧位作为定点,图像的左下角处显示时钟标记,常规留存KC位3点、6点、9点及12点的超声图像,将瘘管全程走行及内口、外口显示的二维图像、彩色图像与频谱图像进行存留,并采集三维成像模块,于必要情况下对动态超声图像进行留存;术后动态观察患者的直肠肛管壁内部回声,并观察有无内口假性愈合,支管存在与否及脓腔是否残留,以及肛门内外括约肌是否存在损伤,临床评估瘘管闭合状况

与肛缘周边疤痕皮下的愈合超声表现, 参照评估结果为临床指导进一步提供参考(图1, 2)。采集直肠腔内超声影像后由影像科3名具有丰富诊断经验的医师出具诊断报告, 诊断结果不一时协商解决。根据检查结果指导临床开展抗炎、促进创面愈合等治疗。2)对照组患者未接受直肠内超声检查, 根据临床医师的经验明确是否需进一步开展处理。

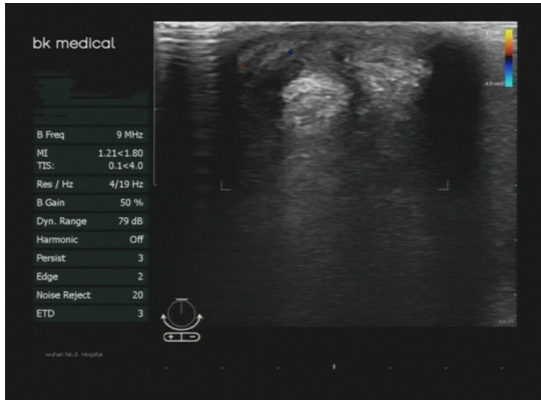


图1 直肠肛管壁内部回声

Figure 1 Internal echo of anorectal wall

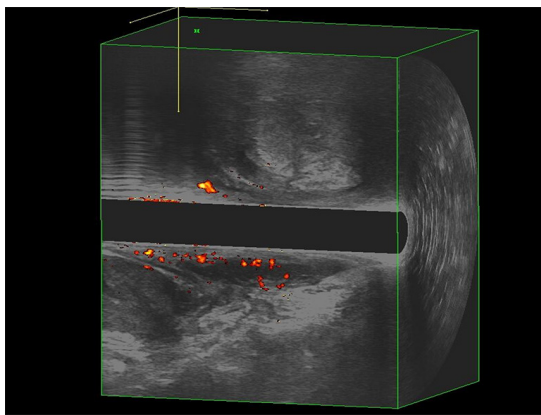


图2 瘻管闭合状况与肛缘周边疤痕皮下愈合

Figure 2 Closure of fistula and subcutaneous healing of scar around anal margin

1.3 观察指标

观察并对比两组患者瘻管内口处理是否彻底、有无假性愈合、瘻管主管处理是否彻底、支管存在与否及脓腔是否残留, 同时对两组患者术后创口愈合时间进行分析, 记录术后延迟愈合及疤痕感染、肛瘻复发的发生率。

1.4 统计学处理

选取Excel建立数据库, 应用SPSS 20.0软件工具包实施数据校对, 计量数据应用均数±标准差($\bar{x}\pm s$)描述, 采用 t 检验; 计数数据用例(%)描述, 采用 χ^2 检验, $P<0.05$ 代表组内、组间差异有统计学意义。

2 结果

2.1 瘻管处理效果

相较于对照组, 实验组患者术后瘻管内口处理彻底检出率、瘻管主管处理彻底检出率大于对照组, 假性愈合、支管/脓腔残留检出率小于对照组, 差异有统计学意义($P<0.05$, 表1)。

2.2 术后伤口愈合效果

对照组患者术后伤口愈合时间平均为(9.6 ± 1.2)d, 而实验组患者术后伤口愈合时间平均为(6.8 ± 2.0)d; 相较于对照组, 实验组患者术后伤口愈合时间缩短, 差异有统计学意义($t=9.474$, $P<0.001$); 且相较于对照组, 实验组患者术后愈合延迟、疤痕感染、肛瘻复发的发生率均降低, 差异有统计学意义($P<0.05$, 表2)。

2.3 直肠腔内超声影像图

超声影像显示: 术后部位呈片状稍高回声区, 内可见细长低回声带, 部分低回声带内可见气体强回声(图3, 4); 术后脓腔残留超声显示在稍高回声区见局部不规则回声减低区(图5, 6); 术后内口处理不彻底可见肛管壁局限性连续性中断(图7, 8)。

表1 两组患者术后瘻管处理效果对比

Table 1 Comparison of fistula treatment effect between two groups

组别	<i>n</i>	瘻管内口处理彻底/[例(%)]	假性愈合/[例(%)]	瘻管主管处理彻底/[例(%)]	支管/脓腔残留/[例(%)]
对照组	80	66 (82.5)	11 (13.8)	69 (86.3)	9 (11.3)
实验组	120	115 (95.8)	5 (4.2)	118 (98.3)	2 (1.7)
χ^2		9.925	5.990	11.532	6.738
<i>P</i>		0.002	0.014	0.001	0.004

表2 两组患者术后伤口愈合效果

Table 2 Wound healing effect of two groups of patients

组别	n	术后愈合延迟/[例(%)]	疤痕感染/[例(%)]	肛瘘复发/[例(%)]
对照组	80	12 (15.0)	10 (12.5)	7 (8.8)
实验组	120	3 (2.5)	2 (1.7)	1 (0.8)
χ^2		10.881	8.160	5.908
P		0.001	0.004	0.015

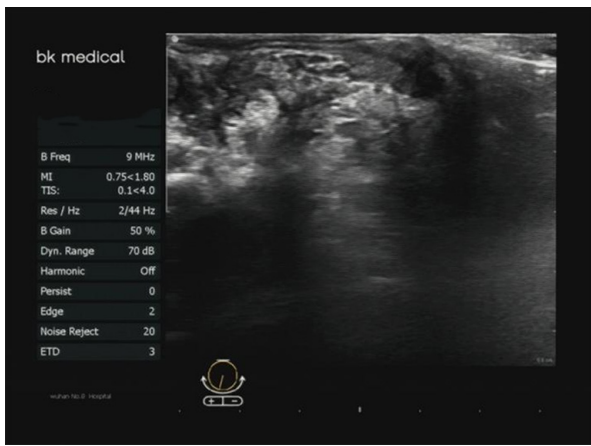


图3 片状稍高回声区内细长瘘管
Figure 3 Long and thin fistula in the flaky slightly hyperechoic area

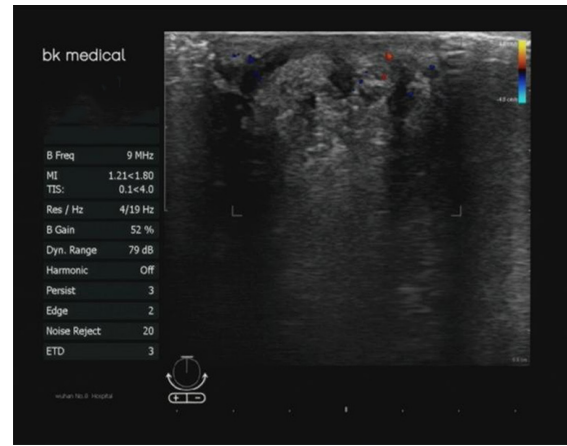


图5 稍高回声区内不规则低回声区
Figure 5 Irregular hypoechoic areas in slightly hyperechoic areas

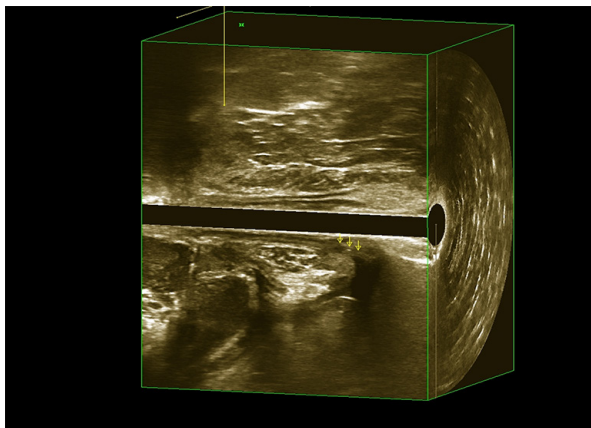


图4 三维成像低回声带内见点状气体强回声
Figure 4 Point like gas echo in the low return vocal cord of 3D imaging

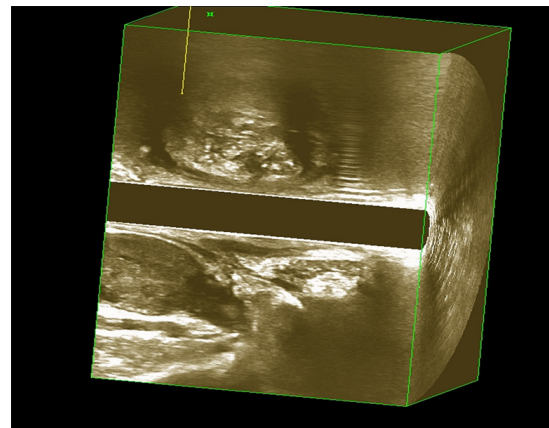


图6 三维成像低回声区内见数个点状强回声
Figure 6 Several dot like strong echoes in the hypoechoic area of 3D imaging

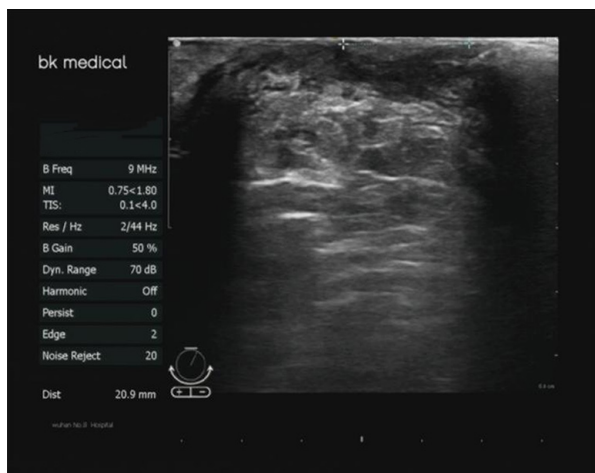


图7肛管壁黏膜局限性回声中断

Figure 7 Local interruption of echo in anal mucosa

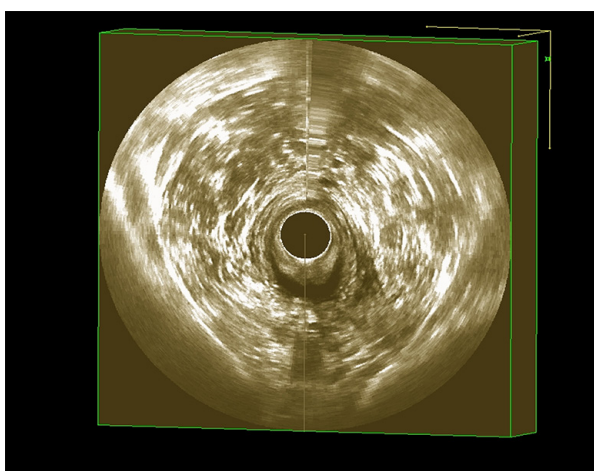


图8 三维成像横断面显示KC位1点内口位置

Figure 8 3D imaging cross section shows the position of inner mouth of point 1 at KC

3 讨论

近年来,随着临床影像学技术不断发展与改进,肛管直肠腔内超声检查技术被提出,其主要应用于临床诊断肛瘘、肛周脓肿,具有较高的诊断准确性^[7]。而肛瘘作为高发性肛肠外科疾病,具有一定复杂性,能发于任意年龄,病因多与创伤、克罗恩病、肛腺感染、放疗、结核、异物及艾滋病等相关情况有关,发病率呈升高趋势,对人们的日常学习及工作、生活存在严重影响,需及早接受诊治^[8-9]。临床传统诊断肛瘘多通过医师的触诊对肛瘘数目及内口位置进行一定了解,但针对复杂性肛瘘、高位瘘管的诊断符合率较

低^[10];而MRI能由多平面对肛周软组织进行成像分析,特别是肛门腔内线圈能获得最佳图像,于临床诊断肛瘘方面存在很高准确性^[11]。同时因活动性瘘管内存在脓液、肉芽组织,开展T2加权成像、短时翻转恢复(short time inversion recovery, STIR)序列检查多显示是高信号,瘢痕于T1、T2成像和STIR序列均显示是低信号,故经磁共振成像技术能对瘘管、瘢痕进行鉴别,于诊断肛瘘方面存在较高准确性,多作为临床诊断肛瘘、评估并发病的首选^[12-13]。但因MRI检查的费用较为高昂,加上医疗资源的限制,导致MRI鉴别诊断肛瘘工作难以普遍开展。

研究^[14]表明:肛瘘患者术后易受多种因素影响出现伤口愈合延迟情况,造成瘘管闭合欠佳,而分析术后创口愈合欠佳的原因可能和瘘管的支管残留、异物残留、创面组织出现水肿感染存在相关性。但通过直肠腔内超声检查,能经显像对肛管、直肠壁的形态结构进行清晰而整体的观察,帮助医师了解不同病程阶段直肠内部回声变化特点,提高术后支管/脓腔残留、异物残留检出率,为临床进一步处理提供影像资料^[15-16]。相关研究^[17-18]显示:肛管直肠腔内超声在明确诊断瘘管方面存在良好的优势,肛瘘常规情况下由低回声瘘管、黏膜破裂引起的内外口构成,一些可能伴有分支,实施直肠腔内超声检查能对瘘管主管及支管的数目、具体走向进行明确判定,帮助医师了解内口位置,提高临床诊断准确性,进而为临床早期发现及诊治肛瘘提供信息,为临床合理制定治疗方案、选择手术方式提供指导,使肛瘘得以彻底治愈,预防复发。本研究结果显示,实验组患者术后伤口愈合效果优于对照组,疤痕感染、复发检出率均低于对照组。说明肛瘘患者术前、术后接受直肠腔内超声检查具有重要作用,其能经超声显像对肛管内外括约肌、直肠壁的形态结构、内部回声变化进行直观、整体而清晰的动态观察;且经直肠腔内超声动态观察患者术后不同时期超声表现,对内外口的愈合状况进行收集、分析,探讨瘘管闭合过程相关影像学资料,为临床医师深入研究诊治措施提供依据,具有操作简便灵活、快捷准确、探查深部、无创伤及无痛苦等优势^[19]。之所以实验组患者伤口愈合时间更短、术后愈合延迟、疤痕感染、肛瘘复发的发生率更低,原因与直肠腔内超声检查明确创面愈合情况后能够为临床开展抗炎、促进创面愈合治疗提供可靠依据。一般情况下术后3~6 d为创面炎症反应期,此时术区正常组织能够持续清除坏死

组织以及创面渗出的分泌物, 为后者愈合营造一个良好的环境。肉芽组织增生期则是结缔组织以及血管内皮细胞增殖的关键时期, 但在此过程中容易受到炎症反应、个体因素的影响而出现创面愈合延迟、疤痕感染等情形, 错过最佳治疗时间给术后复发埋下了隐患。直肠腔内超声检查能及时明确创面愈合情况, 同时又错过创面炎症反应期, 避免了医源性损伤的发生。一旦发现创面愈合延迟或者是炎性感染, 迅速采取针对性的用药治疗即可以为创面愈合提供强有力的保障。

综上所述, 直肠腔内超声检查便于临床追踪观察病灶, 利于临床动态观察患者术后伤口愈合情况, 能为临床鉴别诊断早期复发情况提供信息, 帮助医师准确评价术后愈合效果, 早期制定有效诊治方案, 进而提高临床诊治效果。

参考文献

- 张莲, 蔡卫东, 孙希文. MRI肛瘘内口诊断在治疗中的价值: 磁共振PDWI抑脂与增强T1WI抑脂序列的对照研究[J]. 中国医学计算机成像杂志, 2016, 22(5): 435-439.
ZHANG Lian, CAI Weidong, SUN Xiwen. The value of MRI in the diagnosis of anal fistula internal orifice: a comparative study of lipid suppression sequence of magnetic resonance PDWI and enhanced T1WI[J]. Chinese Computed Medical Imaging, 2016, 22(5): 435-439.
- 许小伍, 汤晓敏. 超声联合磁共振成像在肛瘘临床诊断中的应用[J]. 蚌埠医学院学报, 2016, 41(5): 659-661.
XU Xiaowu, TANG Xiaomin. Application of ultrasound combined with magnetic resonance imaging in clinical diagnosis of anal fistula[J]. Journal of Bengbu Medical College, 2016, 41(5): 659-661.
- 陈璐, 陈书才, 王志民, 等. 三维肛管直肠腔内超声在肛瘘诊治中的应用价值[J]. 中国肛肠病杂志, 2017, 37(2): 63-66.
CHEN Lu, CHEN Shucui, WANG Zhimin, et al. Application value of three-dimensional anorectal cavity ultrasound in the diagnosis and treatment of anal fistula[J]. Chinese Journal of Coloproctology, 2017, 37(2): 63-66.
- Benlice C, Yildiz M, Baghaki S, et al. Fistula tract curettage and the use of biological dermal plugs improve high transsphincteric fistula healing in an animal model[J]. International journal of colorectal disease, 2016, 31(2): 291-299.
- 陈斐臻, 宫玉榕, 吴燕燕. 360°直肠腔内超声对肛瘘分型和内口定位准确性的影响研究[J]. 中外医疗, 2018, 37(8): 179-180.
CHEN Feizhen, GONG Yurong, WU Yanyan. Study on the influence of 360° rectal intraluminal ultrasound on the accuracy of anal fistula classification and internal orifice location[J]. China Foreign Medical Treatment, 2018, 37(8): 179-180.
- 杨来华, 吴如雷, 符昕, 等. 高分辨率MRI-T2加权成像联合扩散加权成像对肛瘘及其活动性的评价[J]. 实用医学杂志, 2018, 34(8): 1364-1367.
YANG Laihua, WU Rulei, FU Xin, et al. Evaluation of anal fistula and its activity by high resolution MRI-T2 weighted imaging combined with diffusion weighted imaging[J]. The Journal of Practical Medicine, 2018, 34(8): 1364-1367.
- Bae JH, Kim SH. Transrectal ultrasound-guided prostate biopsy versus combined magnetic resonance imaging-ultrasound fusion and systematic biopsy for prostate cancer detection in routine clinical practice[J]. Ultrasonography, 2020, 39(2): 137-143.
- 王晋君, 郭兴华, 张晓红, 等. 多模态磁共振成像技术在前列腺癌诊断中的价值[J]. 中国基层医药, 2015, 22(6): 825-827.
WANG Jinjun, GUO Xinghua, ZHANG Xiaohong, et al. The value of multimodal magnetic resonance imaging in the diagnosis of prostate cancer[J]. Chinese Journal of Primary Medicine and Pharmacy, 2015, 22(6): 825-827.
- 陈晓宇, 姚群立, 张晓斐, 等. 肛瘘合并脓肿的磁共振成像诊断及其临床应用价值[J]. 实用医学影像杂志, 2015, 16(1): 15-17.
CHEN Xiaoyu, YAO Qunli, ZHANG Xiaofei, et al. MRI diagnosis of anal fistula complicated with abscess and its clinical application value[J]. Journal of Practical Medical Imaging, 2015, 16(1): 15-17.
- 朱杏莉, 张伯英, 郭建平, 等. 磁共振成像高分辨率抑脂T2加权成像及三维重建在肛瘘诊断中的价值[J]. 实用医学影像杂志, 2017, 18(5): 369-370.
ZHU Xingli, ZHANG Boying, GUO Jianping, et al. The value of high-resolution fat suppression T2 weighted imaging and three-dimensional reconstruction in the diagnosis of anal fistula[J]. Journal of Practical Medical Imaging, 2017, 18(5): 369-370.
- Ortega AE, Gesek A, Linnebur M, et al. Selected Techniques of Anal Fistula Surgery from Antiquity Through the Early 20th Century Illustrated[J]. Diseases of the colon and rectum, 2017, 60(6): 636-646.
- 胡小祥, 李龙, 徐蕾. 经直肠双平面腔内超声联合瘘管造影在肛瘘诊断中的临床应用[J]. 中国现代医生, 2017, 55(31): 92-94.
HU Xiaoxiang, LI Long, XU Lei. Clinical application of transrectal biplane intracavitary ultrasound combined with fistulography in the diagnosis of anal fistula[J]. Modern Chinese Doctor, 2017, 55(31): 92-94.
- 李胜华, 孙庚喜, 欧宁锋, 等. 肛瘘的术前MRI表现与手术结果的对照分析[J]. 实用放射学杂志, 2017, 33(9): 1371-1374.
LI Shenghua, SUN Gengxi, OU Ningfeng, et al. Comparative analysis of preoperative MRI findings and surgical results of anal fistula[J]. Journal of Practical Radiology, 2017, 33(9): 1371-1374.
- 王瑞华, 杨喆, 叶兆祥. MRI在高位肛瘘瘘管定位及术后复发预

- 测中的价值[J]. 天津医科大学学报, 2017, 23(1): 35-37.
- WANG Ruihua, YANG Zhe, YE Zhaoxiang. The value of MRI in locating high anal fistula fistula and predicting postoperative recurrence[J]. Journal of Tianjin Medical University, 2017, 23(1): 35-37.
15. Skouteris VM, Crawford ED, Mouraviev V, et al. Transrectal ultrasound-guided versus transperineal mapping prostate biopsy: complication comparison[J]. Rev Urol, 2018, 20(1): 19-25.
 16. Stazi A, Izzo P, D'Angelo F, et al. Video-assisted anal fistula treatment in the management of complex anal fistula: a single-center experience[J]. Minerva chirurgica, 2018, 73(2): 142-150.
 17. Dietrich CF, Hollerweger A, Dirks K, et al. EFSUMB Gastrointestinal Ultrasound (GIUS) Task Force Group: celiac sprue and other rare gastrointestinal diseases ultrasound features[J]. Med Ultrason, 2019, 21(3): 299-315.
 18. Jabeen N, Qureshi R, Sattar A, et al. Diagnostic accuracy of short tau inversion recovery as a limited protocol for diagnosing perianal fistula[J]. Cureus, 2019, 11(12): e6398.
 19. 李森娟, 沈桂鑫, 凌怡庭, 等. LAVA序列增强MRI及MRI造影成像对复杂性肛瘘的诊断价值[J]. 浙江医学, 2017, 39(20): 1809-1810.
- LI Senjuan, SHEN Guixin, LING Yiting, et al. Diagnostic value of lava sequence enhanced MRI and MRI angiography in complex anal fistula[J]. Zhejiang Medical Journal, 2017, 39(20): 1809-1810.

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