

doi: 10.13241/j.cnki.pmb.2020.15.020

全面与选择性腹部超声检查对急腹症诊断效果及满意度的影响 *

黄泽明¹ 瞿国萍¹ 纪宗萍¹ 曾福强¹ 郑艳玲² 吴旺钊¹

(1 广州中医药大学附属中山中医院 / 中山市中医院超声科 广东 中山 528400;

2 中山大学附属第一医院超声科 广东 广州 510080)

摘要 目的:探讨全面与选择性腹部超声检查对急腹症的诊断效果,评价患者对两种诊断方式的满意度。**方法:**选择 2017 年 3 月至 2019 年 6 月我院诊治的疑似急腹症患者 146 例为研究对象,所有患者均进行全面腹部超声检查和选择性腹部超声检查,比较两种检查方式的诊断符合率、敏感度、特异度、误诊率、漏诊率、超声检查时间、诊断时间、延迟诊断率、检查费用及满意度。**结果:**全面腹部超声检查诊断急腹症的符合率、敏感度、特异度高于选择性腹部超声,误诊率、漏诊率低于选择性腹部超声($P<0.05$)。与选择性腹部超声比较,全面腹部超声检查时间较长,诊断时间较短,延迟诊断率较低,检查费用较高($P<0.05$)。患者对全面腹部超声检查的满意度为 97.26%,高于选择性腹部超声的 71.92%($P<0.05$)。**结论:**与选择性腹部超声检查比较,全面腹部超声检查诊断急腹症时间较长,费用较高,但在准确性、漏诊、误诊、延迟诊断、患者满意度等方面优势明显,是诊断急腹症的有效方法。

关键词:急腹症;全面腹部超声;选择性腹部超声;诊断;满意度

中图分类号:R656.1;R445.1 文献标识码:A 文章编号:1673-6273(2020)15-2900-04

The Effect of Comprehensive and Selective Abdominal Ultrasonography on the Diagnosis and Satisfaction of Acute Abdomen*

HUANG Ze-ming¹, QU Guo-ping¹, JI Zong-ping¹, ZENG Fu-qiang¹, ZHENG Yan-ling², WU Wang-zhao¹

(1 Department of Ultrasonography, Zhongshan Hospital of Traditional Chinese Medicine Affiliated to Guangzhou University of Chinese Medicine/Zhongshan Hospital of Traditional Chinese Medicine, Zhongshan, Guangdong, 528400, China;

2 Department of Ultrasonography, First Affiliated Hospital of Sun Yat-sen University, Guangzhou, Guangdong, 510080, China)

ABSTRACT Objective: To explore the diagnostic effect of comprehensive and selective abdominal ultrasonography on acute abdomen, and to evaluate patients' satisfaction with the two diagnostic methods. **Methods:** 146 patients with suspected acute abdomen diagnosed who were treated in our hospital from March 2017 to June 2019 were selected as subjects. All patients underwent comprehensive abdominal ultrasonography and selective abdominal ultrasonography. The diagnostic coincidence rate, sensitivity, specificity, misdiagnosis rate, missed diagnosis rate, ultrasound examination time and diagnostic time, delayed diagnosis rate, inspection cost and satisfaction of the two methods were compared. **Results:** The coincidence rate, sensitivity and specificity of comprehensive abdominal ultrasonography in the diagnosis of acute abdomen were higher than those of selective abdominal ultrasonography, and the misdiagnosis rate and missed diagnosis rate were lower than those of selective abdominal ultrasonography ($P<0.05$). Compared with selective abdominal ultrasonography, comprehensive abdominal ultrasonography had longer time, shorter diagnosis time, lower delayed diagnosis rate and higher examination cost ($P<0.05$). The satisfaction rate of patients with comprehensive abdominal ultrasonography was 97.26%, which was higher than 71.92% with selective abdominal ultrasonography ($P<0.05$). **Conclusion:** Comparison with selective abdominal ultrasonography, comprehensive abdominal ultrasonography has a longer time and higher cost in the diagnosis of acute abdomen, but it has obvious advantages in accuracy, missed diagnosis, misdiagnosis, delayed diagnosis and patient satisfaction. It is an effective method for the diagnosis of acute abdomen.

Key words: Acute abdomen; Comprehensive abdominal ultrasonography; Selective abdominal ultrasonography; Diagnostic; Satisfaction

Chinese Library Classification(CLC): R656.1; R445.1 **Document code:** A

Article ID: 1673-6273(2020)15-2900-04

前言

急腹症包括内科、外科和妇产科急腹症,是腹膜后、盆腔、腹腔内组织和脏器因梗阻、穿孔、血栓及创伤等病理改变而产

生以急性腹部疼痛为主的症状的一类疾病^[1,2]。急腹症临床上常以腹痛为主要表现,同时伴有全身反应,该病具有发病快、病情进展迅速等特点,对患者的健康及生活质量威胁巨大,若不及时治疗可能威胁到患者的生命安全^[3,4]。准确诊断是治疗的前

* 基金项目:广东省科技计划项目(2016A020213128)

作者简介:黄泽明(1984-),男,本科,主治医师,研究方向:腹部超声诊断,E-mail: huangzeming2345@163.com

(收稿日期:2019-12-28 接受日期:2020-01-23)

提,由于急腹症种类繁多、病因复杂,通过症状体征进行诊断的漏诊、误诊的发生率较高,易耽误最佳治疗时机。目前临床上常采用电子计算机断层扫描(Computed tomography,CT)、超声及X线等影像学检查进行诊断,由于超声检查具有经济实惠、检查过程操作简便、属于无创性检查手段、重复性好等特点,是各级医院临床应用范围最为广泛的影像学检查手段^[5,6]。全面腹部超声检查和选择性腹部超声检查是常用的两种超声检查方式,为探明两种检查方式诊断急腹症的优劣,本文通过对比其诊断效果及满意度,以期急腹症的临床诊断提供参考依据,现报道如下。

1 资料和方法

1.1 一般资料

选择2017年3月至2019年6月在我院诊治的疑似急腹症患者146例为研究对象。纳入标准:①入院后根据患者症状体征初步怀疑为急腹症;②均进行超声检查,超声检查图像合格;③采集标本并经病理学检查得出明确的诊断结果;④患者及家属签署知情同意书,积极配合。排除标准:①伴有肝肾功能不全者;②生命体征不稳定者;③智力障碍、精神疾病者;④合并开放性腹部损伤者。146例患者中,男78例,女68例;年龄11~64岁,平均年龄(30.68±11.26)岁;急腹症类型:急性胆囊炎32例,胃肠道穿孔21例,急性单纯性阑尾炎9例,坏疽及穿孔性阑尾炎7例,阑尾周围脓肿5例,水肿型急性胰腺炎11例,出血坏死型急性胰腺炎9例,胆石症18例,其他34例。

1.2 方法

1.2.1 仪器及检查前准备 所有患者均由同一组医师采用Philips HD-11XE型多普勒超声诊断仪(北京垚技术科技发展有限公司)进行选择腹部超声检查和全面腹部超声检查,阅片医师不知道全面腹部超声检查与选择性超声检查的是同一批病例。探头频率设置为:线阵5~13MHz,凸阵3~5MHz,腔内5~9MHz。为了确保得到清晰的图像,检查前如果患者症状较轻,则指导患者饮用足够温开水,若患者症状较重,则需要向盆腔内注入无菌生理盐水300 mL保证膀胱充盈。检查过程中患者均取平卧位,为避免肠内气体影响图像,检查盆腔、泌尿系统时需逐步增加探头压力。

1.2.2 全面腹部超声检查 无论医师申请的是何部位超声检查,均给予全面腹部超声检查,全面检查患者腹部主要脏器(如胃肠道、阑尾、腹腔、输尿管、盆腔、肝胆胰脾、膀胱等),全面检查的同时重点检查与急腹症密切相关的部位,女性患者还需检查子宫附件。检查过程中若发现病变,则需专业医师仔细观察病变情况,包括病变大小、病变形态、病变性质及病变与周边组

织的关系。检查中若有必要则进行针对性深入检查或CT或X线检查。

1.2.3 选择性腹部超声检查 根据医师所申请的超声检查部位进行检查,及临床医师申请单上检查什么部位就仅检查什么部位,根据选择性检查结果进行诊断。检查过程中若发现病变,则需专业医师仔细观察病变情况,包括病变大小、病变形态、病变性质及病变与周边组织的关系。检查中若有必要则进行针对性深入检查或CT或X线检查。

1.2 观察指标及标准

观察指标包括:①诊断效果:超声诊断标准依据《急腹症超声诊断与鉴别诊断》中关于急腹症的相关诊断标准^[7],以病理诊断结果为金标准,比较两种检查方式的符合率、敏感度、特异度、误诊率和漏诊率;②超声检查时间:患者从开始躺下接受检查至检查结束所需的时间;③诊断时间:检查结束医师开始阅片到作出诊断结果所需的时间;④延迟诊断率:延迟诊断率=延迟诊断病例(超声检查次数在2次及以上才作出诊断者)/总病例×100%;⑤检查费用:超声检查所需费用。⑥满意度:自行设计满意度调查问卷,共10个题,每个题均设非常满意、满意、基本满意和满意四个选项,于患者出院前进行诊断满意度调查,满意度分为非常满意(10题均选非常满意)、满意(有满意选项,且无基本满意和满意选项)、基本满意(有基本满意选项,且无不满意选项)和不满意(有不满意选项),满意度=非常满意率+满意率+基本满意率。

1.3 统计学方法

采用SPSS25.0进行统计分析,超声检查时间、诊断时间、检查费用等符合正态分布的计量资料以均数±标准差($\bar{x} \pm s$)描述,两组比较采用配对检验;诊断符合率、延迟诊断率、满意度等计数资料用%表示,两组比较采用 χ^2 检验。以 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 两种检查方式诊断效果比较

全面腹部超声检查诊断急腹症的符合率、敏感度、特异度高于选择性腹部超声,差异有统计学意义($\chi^2=11.372, 11.026, 14.279; P=0.000, 0.000, 0.000$),误诊率、漏诊率低于选择性腹部超声,差异有统计学意义($\chi^2=10.893, 9.974, P=0.000, 0.000$)。详见表1、表2。

2.2 两种检查方式的相关指标比较

与选择性腹部超声比较,全面腹部超声检查时间较长,诊断时间较短,延迟诊断率较低,检查费用较高,差异有统计学意义($P < 0.05$)。详见表3。

表1 全面腹部超声检查诊断结果

Table 1 Diagnostic results of comprehensive abdominal ultrasonography

Comprehensive abdominal ultrasonography	Pathological examination		Coincidence rate (%)	Sensitivity(%)	Specificity(%)	Misdiagnosis rate (%)	Missed diagnosis (%)
	Acute abdomen	Non-acute abdomen					
Acute abdomen	136	1	97.26	97.81	85.71	14.29	2.16
Non-acute abdomen	3	6					

2.3 患者对两种检查方式的满意度比较

患者对全面腹部超声检查的满意度为 97.26%，高于选

择性腹部超声的 71.92%，差异有统计学意义 ($P < 0.05$)。详见

表4。

表 2 选择性腹部超声诊断结果

Table 2 Selective abdominal ultrasonography Diagnosis

Comprehensive abdominal ultrasonography	Pathological examination		Coincidence rate (%)	Sensitivity(%)	Specificity(%)	Misdiagnosis rate (%)	Missed diagnosis (%)
	Acute abdomen	Non-acute abdomen					
Acute abdomen	136	1	97.26	97.81	85.71	14.29	2.16
Non-acute abdomen	3	6					

表 3 两种方式检查时间、诊断时间、延迟诊断率、检查费用比较

Table 3 Comparison of examination time, diagnosis time, delayed diagnosis rate and examination cost between two methods

Inspection methods	n	Inspection time (min)	Diagnosis time (min)	Delayed diagnosis rate [n(%)]	Examination cost (yuan)
Comprehensive abdominal ultrasonography	146	15.36±2.44	1.63±0.36	0(0.00)	313.27±18.54
Selective abdominal ultrasonography	146	10.08±2.07	2.94±0.85	29(19.86)	186.43±21.34
t/χ^2		5.782	3.416	2.748	11.386
P		0.000	0.000	0.021	0.000

表 4 患者对两种检查方式的满意度比较[n(%)]

Table 4 Comparisons of patients'satisfaction with the two methods of examination [n (%)]

Inspection methods	n	Very satisfied	Satisfied	Basic Satisfaction	Dissatisfied	Satisfaction
Comprehensive abdominal ultrasonography	146	102(69.86)	34(23.29)	6(4.11)	4(2.74)	142(97.26)
Selective abdominal ultrasonography	146	74(50.68)	19(13.01)	12(8.22)	41(28.08)	105(71.92)
χ^2						3.946
P						0.011

3 讨论

急腹症是临床上较为常见的一类疾病,可发生在任何年龄段的人群,临床上以急性胆囊炎、胃肠道穿孔、急性阑尾炎等最为常见^[8-10]。急腹症种类繁多,根据不同的分类标准可以分为不同的种类,如根据科室可分为内科、外科、妇产科和儿科急腹症,而根据其病变情况可分为破裂或穿孔性急腹症、梗阻急腹症、炎性急腹症、出血性急腹症等,其临床表现以急性腹痛为主^[11,12]。急腹症发病急,病情进展快,患者常出现疼痛难忍的情况,因此需要临床医师作出迅速而精准的诊断,尽早治疗,让患者尽快摆脱疼痛的苦恼。临床上对急腹症的诊断方法较多,其中以 CT、X 线、超声等影像学检查应用最广,但 CT 检查不仅价格昂贵,且具有一定的辐射,对儿科急腹症的诊断颇受限制,而 X 线检查诊断的敏感度较低^[13,14]。由于超声检查简便无创,且重复性较好,经济实惠,是急腹症检查首选的方法^[15,16]。超声检查又有经腹部超声和经阴道超声两种方式,其中经腹部超声检查操作简便,但其检查准确性较经阴道超声差^[17,18],而经阴道超声仅适用于妇科急腹症的检查诊断,限制了其临床应用范围。由

于急腹症的种类多,病因复杂,采用选择性腹部超声检查诊断容易漏诊或误诊^[19,20],为了突破传统选择性腹部超声检查的这一局限,全面腹部超声检查的方法被提出。

本研究显示,全面腹部超声检查诊断急腹症的符合率、敏感度、特异度高于选择性腹部超声,误诊率、漏诊率低于选择性腹部超声。说明全面腹部超声检查可提高诊断的准确性,其原因主要在于:首先,全面腹部超声检查不是以检查申请单上的项目被动进行检查,而是从临床医师的角度根据患者症状体征进行全面的检查,检查可根据影像学表现判断是否患有该类疾病^[21,22]。其次,全面腹部超声检查不是简单的多检查几个部位这样的组合检查,而是根据对急腹症的已知知识针对性突出重点的全面快速检查,以腹腔各脏器病变为主要检查重点,例如根据各类急腹症的发病率高的选择必查脏器^[23]。第三,全面腹部超声检查通过扩大检查范围增加检查内容,可使检查结果更加精准,降低漏误诊情况的发生^[24-26]。本研究中,全面腹部超声检查在检查时间、检查费用方面不具备优势,反而检查时间更长,检查费用更高,但在诊断时间上更具优势,其诊断时间短于选择性腹部超声,且延迟诊断率低于选择性腹部超声。全面腹

部超声检查范围更广,检查项目更多,因而检查时间也较长,但全面性的检查可获得更加丰富的信息,因而更有利于缩短诊断时间,降低延迟诊断率。张发理等^[27]、黄自强等^[28]的研究也显示全面腹部检查时间较长,但诊断时间较短且一次检查诊断成功率更高,本研究与其基本一致。本研究中,全面腹部超声检查费用高于选择性腹部超声。全面腹部超声检查范围广,检查费用自然就高,虽然检查费用高一些,但却可以提高诊断的准确性,提高首次检查诊断的成功率,降低了使用CT检查的可能性^[29,30]。本研究中满意度调查显示,患者对全面腹部超声检查的满意度高于选择性腹部超声,这主要得益于精确的诊断,从而提高了患者的满意度。

综上所述,全面腹部超声检查诊断急腹症的符合率、敏感度、特异度、满意度高,诊断时间短且延迟诊断发生率低,是诊断急腹症的有效手段,值得临床推广应用。

参考文献(References)

- [1] Dereziński TL, Fórmankiewicz B, Migdalski A, et al. Prevalence of abdominal aortic aneurysms in rural/urban population in central Poland[J]. *Kardiologia Polska*, 2017, 75(7): 705-710
- [2] Tengberg LT, Bay-Nielsen M, Bisgaard T, et al. Multidisciplinary perioperative protocol in patients undergoing acute high risk abdominal surgery[J]. *Br J Surg*, 2017, 104(4): 463
- [3] Tsai CC, Huang PK, Liu HK, et al. Pediatric types I and VI choledochal cysts complicated with acute pancreatitis and spontaneous perforation: A case report and literature review [J]. *Medicine*, 2017, 96(42): e8306
- [4] Palmer ES, Samsamoneyu P, Siu JM, et al. Down boy! A case of acute abdomen following a dog bite to the scrotum [J]. *BMC Pediatr*, 2019, 19(1): 169
- [5] Prada AM, Vázquez JL, Salgado BA, et al. Appendicitis versus nonspecific acute abdominal pain: diagnostic accuracy of ultrasound [J]. *Cir Pediatr*, 2017, 30(3): 146-151
- [6] Morelli L, Palmeri M, Guadagni S, et al. Abdominal ultrasound scan for the follow-up of pancreatic cystic lesions: could it play a role as a safe and cost-saving alternative to the routine MRI?[J]. *Pancreatology*, 2018, 18(4): S52-S63
- [7] 王园园. 急腹症超声诊断与鉴别诊断 [M]. 北京: 北京科学出版社, 2017: 1-12
- [8] 李建平, 蔡强, 浦建康, 等. 腹内压值对外科急腹症患者的检测价值研究[J]. *现代生物医学进展*, 2016, 16(16): 3150-3153
- [9] Gomez-Perez SL, Chaudhry V, Mar W, et al. Impact of Abdominal Adipose Depots and Race on Risk for Colorectal Cancer: A Case-Control Study[J]. *Nutr Cancer*, 2017, 69(4): 573-579
- [10] Marchioni A, Castaniere I, Tonelli R, et al. Ultrasound-assessed diaphragmatic impairment is a predictor of outcomes in patients with acute exacerbation of chronic obstructive pulmonary disease undergoing noninvasive ventilation[J]. *Crit Care*, 2018, 22(1): 109
- [11] Safadi S, Lee S, Thompson W, et al. Acute Abdominal Pain: When the Whole Is Greater Than the Sum of Its Parts[J]. *Dig Dis Sci*, 2017, 45(7): 1-5
- [12] Mokart D, Penalver M, Chowchine L, et al. Surgical treatment of acute abdominal complications in hematology patients: outcomes and prognostic factors[J]. *Leuk Lymphoma*, 2017, 58(10): 2395-2402
- [13] Karila-Cohen P, Cuccioli F, Tammamo P, et al. Contribution of Computed Tomographic Imaging to the Management of Acute Abdominal Pain after Gastric Bypass: Correlation Between Radiological and Surgical Findings[J]. *Obes Surg*, 2017, 27(8): 1-12
- [14] Poletti PA, Becker M, Becker CD, et al. Emergency assessment of patients with acute abdominal pain using low-dose CT with iterative reconstruction: a comparative study[J]. *Eur Radio*, 2017, 27(8): 3300-3309
- [15] Fagerström A, Paajanen P, Saarelainen H, et al. Non-specific abdominal pain remains as the most common reason for acute abdomen: 26-year retrospective audit in one emergency unit[J]. *Scand J Gastroenterol*, 2017, 52(10): 1-6
- [16] Udechukwu NS, D'Souza RS, Abdulkareem A, et al. Computed tomography diagnosis of omental infarction presenting as an acute abdomen[J]. *Radiol Case Rep*, 2018, 13(3): 583-585
- [17] Kumar A, Kapoor VK, Behari A, et al. Splenic tuberculosis in an immunocompetent patient can be managed conservatively: a case report[J]. *Gastroenterol Rep (Oxf)*, 2018, 6(1): 72-74
- [18] A Memon W, Siddiqui S, Hamza A. Autoimmune Disease Presenting As Acute Abdomen [J]. *J Ayub Med Coll Abbottabad*, 2017, 29(1): 139-141
- [19] Engjom T, Sangnes DA, Havre RF, et al. Diagnostic Accuracy of Transabdominal Ultrasound in Chronic Pancreatitis [J]. *Ultrasound Med Biol*, 2017, 43(4): 735-743
- [20] Qiu W, Sun X, Wei F, et al. Clinical study of B-mode ultrasound-guided retroperitoneal and abdominal catheter treatment of severe acute pancreatitis[J]. *Minerva Chir*, 2016, 71(1): 25-30
- [21] 余红星, 张春玲. 阴道超声检查与腹部超声检查在妇产科疾病诊断中的应用价值[J]. *陕西医学杂志*, 2019, 48(4): 445-448
- [22] 夏晓伟. 急性阑尾炎患儿腹部超声、CT 检查的影像学特征分析[J]. *医学临床研究*, 2018, 35(9): 1794-1796
- [23] Mekhael M, El-Hussuna A. Acute abdomen in a patient with paraesophageal hernia, resulting in acute compromised respiratory function: A case report[J]. *Int J Surg Case Re*, 2017, 31(2): 180-183
- [24] Tseng P, Berdahl C, Kearn Y L, et al. Does Right Lower Quadrant Abdominal Ultrasound Accurately Identify Perforation in Pediatric Acute Appendicitis?[J]. *J Emerg Med*, 2016, 50(4): 638-642
- [25] Gustafsson C, Lindelius A, Törngren S, et al. Surgeon-Performed Ultrasound in Diagnosing Acute Cholecystitis and Appendicitis [J]. *World J Surg*, 2018, 42(8): 3551-3559
- [26] Giljaca V, Nadarevic T, Poropat G, et al. Diagnostic Accuracy of Abdominal Ultrasound for Diagnosis of Acute Appendicitis: Systematic Review and Meta-analysis[J]. *World J Surg*, 2017, 41(3): 1-8
- [27] 张发理, 王玲. 全面腹部超声与选择性腹部超声检查在急腹症诊断中的价值对比[J]. *广西医学*, 2018, 40(4): 460-462
- [28] 黄自强, 朱茂国, 兰智斌. 超声检查急腹症临床应用价值分析[J]. *医学影像学杂志*, 2017, 27(5): 974-976
- [29] Mohammed MF, Elbanna KY, Mohammed AME, et al. Practical Applications of Dual-Energy Computed Tomography in the Acute Abdomen[J]. *Radiol Clin North Am*, 2018, 56(4): 549-563
- [30] 李辰. 全面腹部超声检查在老年急腹症诊断中的应用 [J]. *中国老年学杂志*, 2018, 38(15): 3712-3714