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BI-RADS 3 级对乳腺病灶患者的诊断结果及影响因素分析 *

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摘要 目的: 回顾性分析超声 BI-RADS 3 级对乳腺病灶患者的诊断结果及影响因素。**方法:** 选择 2014 年 8 月至 2017 年 8 月上海交通大学医学院附属第九人民医院和复旦大学附属华山医院北院收治的 168 例乳腺病灶患者, 回顾性分析其影像学资料及病理分析结果。分析 BI-RADS 3 级对乳腺病灶的阴性诊断率, 采用 Kim 分级对 BI-RADS 3 级结果进行重新分级, 分析影响 BI-RADS 分级及重新分级的主要因素。**结果:** 168 例 BI-RADS 3 级乳腺病灶中, 159 例为良性病变, 9 例为恶性。168 例 BI-RADS 3 级乳腺病灶的阳性预测值为 5.4%(9/168), 阴性预测值为 94.6%(159/168)。病灶数目、年龄、医师年资、病灶大小对 BI-RADS 3 级良恶性乳腺病灶判断无明显影响, 而 BI-RADS 3 级恶性乳腺病灶较良性病灶更易触诊($P < 0.05$)。重新分级发现, 124 例仍为 BI-RADS 3 级, 44 例上升至 BI-RADS 4 级, 重新分级恶性病灶的检出率为 100%(9/9), 假阳性率为 20.8%(35/168)。病灶多发、年龄 ≥ 40 岁更可能评估为 BI-RADS 4 级($P < 0.05$), 医师年资、病灶大小、病灶触及情况对重新分级无明显影响($P > 0.05$)。**结论:** BI-RADS 3 级对乳腺良性病灶有较高的阴性诊断率, 重新分级可提高乳腺恶性病灶的检出率, 但会造成较高的假阳性率, 影响 BI-RADS 分级的主要因素为病灶可否触及, 影响重新分级的主要因素为患者年龄及乳腺病灶是否多发。

关键词: 超声; BI-RADS 3 级; 乳腺病灶; 重新分级

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Diagnostic Results and Influencing Factors of 168 Patients with Ultrasound BI-RADS Grade 3 Breast Lesions*

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ABSTRACT Objective: To investigate the diagnostic results and influencing factors of 168 patients with ultrasound BI-RADS grade 3 breast lesions. **Methods:** 168 cases with breast lesion from Aug. 2014 to Aug. 2017 in Ninth Peoples Hospital Affiliated to Shanghai JiaoTong University School of Medicine and Northern District of Huashan Hospital Affiliated to Fudan University were chosen, the imaging data and pathological results were retrospective analyzed. The negative diagnosis rate of BI-RADS 3 breast lesion was analyzed, the BI-RADS grade 3 results were reclassification by Kim grade. The main factor influence of BI-RADS grade and reclassification were analyzed. **Results:** 159 cases were benign and 9 cases were malignant in 168 cases of BI-RADS 3 grade breast lesions. The positive diagnosis rate of 168 cases with BI-RADS 3 breast lesions was 5.4%(9/168), the negative diagnosis rate of 168 cases with BI-RADS 3 breast lesions was 94.6%(159/168), the stoves numbers, age, doctor, sage, lesion size had no significant effect on the judgment of benign and malignant breast lesions in BI-RADS grade 3 breast lesions, the malignant breast lesions was more palpable than benign lesions in BI-RADS grade 3 breast lesions, $P < 0.05$. 124 cases were still BI-RADS grade 3 and 44 cases were BI-RADS grade 4 by reclassification. The malignant lesions rate of reclassification was 100%(9/9), the false positive rate was 20.8%(35/168). Multiple lesions, age ≥ 40 years were more evaluated to BI-RADS grade 4 ($P < 0.05$), physician's seniority, lesion size, and lesion exposure have no significant effect on reclassification($P > 0.05$). **Conclusion:** BI-RADS 3 grade had high negative diagnosis rate for benign breast lesions, reclassification could increase the detection rate of malignant breast lesions, while which would improve the false positive rate. Whether the lesions could be affected or not

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was the main factor affecting the BI-RADS classification, the patients age and whether the breast lesions frequent or not were main factors affecting the re-grading.

Key words: Ultrasound; BI-RADS 3 grade; Breast lesion; Reclassification

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前言

乳腺癌是一种严重危害女性健康的疾病,发病年龄慢慢趋向于年轻化,其早期诊断显得尤为重要。乳腺病灶的检查方式包括超声检查、医师触诊、X线钼靶检查、MRI检查四种方法^[1]。医师触诊与其临床经验密切相关,且只针对位置表浅或较大的乳腺病灶^[2];X线钼靶不能检测哺乳期妇女,不能检查乳腺腺体丰富者,可能与病变重叠,不能提供明确的定性诊断^[3];MRI检查操作成本较高,操作时间、患者舒适性不及超声检查,存在金属植入者无法进行该检查^[4]。近年来,高频探头的发展提高了对乳腺病灶组织内微钙化诊断的灵敏度,也提高了超声对乳腺病灶筛查的敏感性^[5]。目前,超声在乳腺占位性病变的描述、诊断方面有一定的检查者依赖性和自由性^[6]。

BI-RADS 分级是 2003 年由美国放射学会推出的乳腺影像报告和数据库系统,包括描述乳腺病灶的特征性术语(如乳腺病灶的方位、形态等)和评价病灶恶化程度,且规范了超声图像术语及分级诊断标准,也提高了超声用于乳腺诊断的临床应用价值^[7,8]。超声检查对乳腺病灶性质的判断有重要意义,尤其是对于乳腺良性病灶,其阴性预测值高达 99%^[9]。但以往研究中缺乏东方黄种人的数据,且 BI-RADS 3 级乳腺病变的恶变率在不同研究中存在差异^[11,12],其结果决定是否需对乳腺病变进行下一步活检^[13]。因此,对 BI-RADS 3 级乳腺病变的鉴别诊断非常重要,本研究对 51 例 BI-RADS 3 级乳腺病灶患者的超声影像学特征进行了总结研究,旨在明确 BI-RADS 3 级对乳腺病灶患者的影响因素及诊断价值。

1 资料与方法

1.1 一般资料

选择 2014 年 8 月至 2017 年 8 月上海交通大学医学院附属第九人民医院和复旦大学附属华山医院北院收治的 169 例乳腺病灶患者,回顾性分析其影像学资料及病理结果。年龄 16~83 岁,平均年龄为 44.8 ± 6.1 岁,病灶大小为 0.3~2.9 cm,平均病灶大小为 1.5 ± 0.4 cm。经超声初步筛查时,超声医师评估为 BI-RADS 3 级,所有患者在随访 12 个月时均经病理活检。若患者双乳有多发病灶时,选取分级最高的一枚病灶,若分级相同,选直径最大的一枚病灶进入本研究。BI-RADS 病灶的诊断标准:①与皮肤平行或高小于宽;②形态椭圆形或圆形;③周缘窄而锐利;④边界清楚;⑤后方回声无变化或增强;⑥大面积钙化或后方声影;⑦无周围组织改变;⑧内部无血流。同时满足①、②条且满足③~⑧中任意 3 条及以上为 BI-RADS 3 级。

1.2 研究方法

采用 Philips iU22 彩色多普勒超声仪,探头频率为 7-12 MHz。乳腺病灶切除用 SCM23K(美国强生公司生产)的 Mam-motome 系统,组件为内外套针、8G 旋切刀、真空抽吸泵、控制

器、传送装置等。168 例患者均由超声医师按照 BI-RADS 超声分级标准及临床经验判断,乳腺病灶初次分级为 BI-RADS 3 级,报告描述词有方位和形态等九个方面。超声医师初步诊断时参考患者性别、主诉、体格检查及各种已知的影像学报告。本研究选择患者的信息包括患者年龄(≥ 40 岁或 <40 岁)、体表触诊情况(不能触及或能触及)、病灶数目(单发或多发)、病灶大小(≥ 10 mm 或 <10 mm)及诊断医师年资(主治以上医师组或住院医师组)。

根据 Kim 等报道^[14],将乳腺病灶特征分为:①低度可疑恶性:边缘不光滑、内部回声不均和后方见声影等;②高度可疑恶性:边缘呈毛刺状、形态不规则、内伴微钙化灶。BI-RADS 4 级:出现 ≥ 1 低度可疑恶性特征;BI-RADS 5 级:出现 ≥ 2 高度可疑恶性特征。为避免超声医师年资及经验对 BI-RADS 分级造成影响,本研究中再加入了两名从事超声 5 年医生的超声医师对 BI-RADS 分级及 Kim 新分级结果一起判断。

1.3 统计学分析

采用统计分析软件 SPSS22.0 进行数据分析,计数资料用[例(%)]表示,组间比较采用 χ^2 检验,以 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 168 例 BI-RADS 3 级乳腺病灶病理结果

168 例乳腺病灶患者,9 例恶性(导管浸润癌 4 例,导管内癌 1 例,浸润小叶癌 1 例,筛状癌 1 例,印戒细胞癌 1 例,原位癌 1 例),余为良性,其中 10 例导管内乳头状瘤(伴不典型增生 1 例、伴钙化 1 例)、管状腺瘤 1 例、分叶状肿瘤 2 例(1 例为交界性叶状肿瘤)、肉芽肿性乳腺炎 4 例、纤维腺瘤 61 例(4 例伴钙化)、乳腺腺病(纤维组织增生、纤维囊性增生、潴留囊肿、导管上皮增生)78 例,乳腺内淋巴结 1 例,血管脂肪瘤 1 例,脂肪瘤 1 例。

168 例 BI-RADS 3 级乳腺病灶的阳性预测值为 5.4%(9/168),阴性预测值为 94.6%(159/168)。

2.2 BI-RADS 3 级乳腺病灶良恶性的单因素分析

病灶数目、年龄、医师年资、病灶大小对 BI-RADS 3 级良恶性乳腺病灶判断无明显影响,而 BI-RADS 3 级恶性乳腺病灶较良性病灶更易触诊($P < 0.05$)。

2.3 采用 Kim 分级分析 168 例乳腺病灶结果及影响因素

采用 Kim 分级发现 168 例 BI-RADS 3 级患者中有 124 例为 BI-RADS 3 级,44 例为 BI-RADS 4 级。44 例 BI-RADS 4 级中有 9 例为恶性,恶性病灶的检出率为 100%(9/9),35 例为良性,假阳性率为 20.8%(35/168)。病灶多发、年龄 ≥ 40 岁更可能评估为 BI-RADS 4 级($P < 0.05$),医师年资、病灶大小、病灶触及情况对重新分级无明显影响($P > 0.05$)。

表 1 BI-RADS 3 级乳腺病灶良恶性影响因素分析

Table 1 Analysis of the factors affecting benign and malignant in BI-RADS 3 grade breast lesions

Items	Grade	Benign	Malignant	χ^2	P
Lesions number	Multiple	79	2	-	1.000*
	Single shot	80	7		
Age(Years)	≥ 40	69	8	-	1.000*
	<40	90	1		
Physician	Attending physician	82	4	0.000	0.940
	Resident	77	5		
Affecting lesions	Unreachable	51	2	5.270	0.022
	Awkward	108	7		
Lesion size(cm)	≥ 1	115	7	-	1.000*
	<1	44	2		

Note: *Fisher Precise test

表 2 168 例乳腺病灶分级的影响因素

Table 2 Influencing factors of 168 cases of breast lesion grading

Items	Grade	Grade 3	Grade 4	χ^2	P
Lesions number	Multiple	80	22	4.488	0.034
	Single shot	44	22		
Age(Years)	≥ 40	91	23	5.680	0.017
	<40	33	21		
Physician	Attending physician	64	22	0.05	0.824
	Resident	60	22		
Affecting lesions	Unreachable	66	29	0.232	0.630
	Awkward	58	15		
Lesion size(cm)	≥ 1	63	38	0.019	0.889
	<1	61	6		

3 讨论

乳腺癌是 40-60 岁女性最为常见的乳腺疾病,在我国发病率为 23.2/10 万,已居女性肿瘤首位,死亡率为 4.9/10 万^[15]。乳腺肿瘤处理“三早原则”及“患者利益最大化原则”会导致过度医疗或延误病情,如何在二者间进行取舍一直困扰着临床医师^[16]。目前,乳腺癌检测主要采用影像学检查,没有放射性、对患者身体伤害小、检查准确及时治疗,性价比高,深受临床医生与患者的信赖^[17]。BI-RADS 不仅可规范超声报告的书写及诊断,其具体的分级标准对乳腺疾病选择合适的处理方式有重要的价值及意义^[18]。BI-RADS 分级标准对乳腺病灶诊断分为 0-6 共 7 个级别^[19-21];0 级为表示影像学评估不全面,需结合其他影像学检查进行诊断;1-2 级为考虑良性或阴性诊断,临床建议定期随访;3 级具有一定恶性几率,临床建议此类患者短期内随访(如 3-6 个月随访一次),随访过程需持续两年以上;4 级以上则考虑恶性的可能,需活检穿刺或手术病理判断疾病良恶性,可引起临床医师足够重视,并进行相应治疗。超声对乳腺 BI-RADS3 级者判断的可靠性研究较少^[22],且基于影像学判断

有良性的可能,使得临床医师、患者对此类病灶处理较为保守、重视不足,可能造成对乳腺病灶疾病诊治的延误。

本研究结果显示 BI-RADS 3 级乳腺病灶的阴性预测值为 94.6%(159/168),表明 BI-RADS 3 级对乳腺病灶的阴性预测值较高,说明 BI-RADS 分级中 BI-RADS 3 级乳腺病灶患者其偏良性概率较大,与 Varella M A S 等结果类似^[23]。病灶数目、年龄、医师年资、病灶大小对 BI-RADS 3 级良恶性乳腺病灶判断无明显影响,而 BI-RADS 3 级恶性乳腺病灶较良性病灶更易触诊,表明超声影像检查结合临床医师触诊可提高对乳腺病灶的良恶性辨识度。有研究显示^[24]BI-RADS 3 级病灶良恶性与病灶扪及与否没有统计学意义,与本文结果不相符。可能是由于样本量不足,也可能是由于 Wang J 等研究只进行了活检,但并未取得完整病理组织。由于超声结果依赖于超声医师的操作经验^[25],本研究将医师年资作为 BI-RADS 对乳腺良恶性病变诊断结果的影响因素,结果显示住院医师对乳腺病灶的辨别能力及图像特征细节分析能力不足,但二者对比无统计学意义,表明医师年资对 BI-RADS 3 级良恶性病变的诊断影响较小。采用 Kim 分级后,168 例 BI-RADS 3 级患者中仍有 124 例认为

BI-RADS 3 级,44 例上升至 BI-RADS 4 级,表明使用 Kim 分级后,使得医师可以更好的注意病灶图像细节,与初步筛选 BI-RADS 3 级的乳腺病灶标准相比,Kim 分级更客观,恶性检出率更高,但其导致的假阳性率过高,使部分良性病变患者进行了活检穿刺^[26,27]。

病灶多发、年龄 ≥ 40 岁更可能评估为 BI-RADS 4 级,但其指标对重新分级没有影响。多发病灶比单发病灶更易评为 BI-RADS 4 级,可能是诊断时,医生受到单发病灶特征影响,没有对其他特征进行详细诊断,因此容易忽略多发病灶中的恶性病灶,使得 BI-RADS 4 级降低为 BI-RADS 3 级^[28,29]。与年龄 ≥ 40 岁相比, <40 岁患者更易调整为 BI-RADS 4 级,可能是由于 41~45 岁年龄段是乳腺癌患者的发病最高峰,有学者认为需要时可以将 ≥ 40 岁患者良性肿瘤根据情况评级为 BI-RADS 4a,可以减少乳腺癌漏诊率,但会在一定程度上增加良性病变活检穿刺率^[30,31]。

综上所述,BI-RADS 3 级对乳腺良性病灶有较高的阴性诊断率,重新分级可提高乳腺恶性病灶的检出率,但会造成较高的假阳性率,影响 BI-RADS 分级的主要因素为病灶可否扪及,影响重新分级的主要因素为患者年龄及乳腺病灶是否多发。

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