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超声颅脑冠状切面鼻尖偏斜法与常规超声 对早期胎儿颜面部畸形的诊断价值对比*

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摘要目的:对比超声颅脑冠状切面鼻尖偏斜法与常规超声对早期胎儿颜面部畸形的诊断价值。**方法:**研究对象为 2019.1-2024.1 月于我院体检的 120 例疑似胎儿颜面部畸形的孕妇,分别实施常规超声及超声颅脑冠状切面鼻尖偏斜法,以引产后及分娩后结果为诊断金标准,分析不同诊断方式颜面部畸形诊断结果并建立 ROC 曲线分析诊断效能。**结果:**120 例疑似胎儿颜面部畸形的孕妇中有 52 例出现颜面部畸形;超声颅脑冠状切面鼻尖偏斜法最终胎儿颜面部畸形确诊率明显高于常规超声($P<0.05$);常规超声诊断灵敏度和特异度(80.25%、91.36%)低于超声颅脑冠状切面鼻尖偏斜法(91.26%、98.63%)。**结论:**早期胎儿颜面部畸形诊断中,常规超声可实现清晰的颜面部图像,但其诊断准确率、灵敏度与特异度均逊于超声颅脑冠状切面鼻尖偏斜法,这对于提升新生儿质量,改善妊娠结局具有重要价值。

关键词: 颅脑冠状切面鼻尖偏斜法; 常规超声; 胎儿颜面部畸形; 诊断效能

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Comparison of Diagnostic Value of Nasal Tip Deviation Method and Conventional Ultrasound in Early Fetal Facial Deformities Using Ultrasound Coronal Section of the Brain*

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ABSTRACT Objective: To compare the diagnostic value of nasal tip deviation method and conventional ultrasound in early fetal facial deformities using cranial coronal section. **Methods:** The research subjects were 120 pregnant women suspected of having fetal facial deformities who underwent physical examinations at our hospital from January 2019 to January 2024. Routine ultrasound and ultrasound coronal section nasal tip deviation were performed, and the results after induced labor and delivery were used as the diagnostic gold standard. The diagnostic results of facial deformities using different diagnostic methods were analyzed, and ROC curves were established to analyze the diagnostic efficacy. **Results:** 52 out of 120 pregnant women suspected of having fetal facial deformities developed facial deformities; The final diagnosis rate of fetal facial deformities using the nasal tip deviation method in the coronal section of the brain by ultrasound was significantly higher than that of conventional ultrasound ($P<0.05$); The sensitivity and specificity of conventional ultrasound diagnosis (80.25%, 91.36%) were lower than those of the nasal tip deviation method in the coronal section of the brain (91.26%, 98.63%). **Conclusion:** In the diagnosis of early fetal facial deformities, conventional ultrasound can achieve clear facial images, but its diagnostic accuracy, sensitivity, and specificity are inferior to the nasal tip deviation method of ultrasound cranial coronal section. This is of great value for improving neonatal quality and pregnancy outcomes.

Key words: Diagnostic Value of Ultrasonic Craniocerebral Coronal Section Nasal Tip Deviation Method; Conventional ultrasound; Fetal facial deformities; Diagnostic efficacy

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前言

胎儿颜面部畸形发生对胎儿的生活质量具有严重影响^[1],需规范产前检查,早期识别颜面部畸形情况^[2]。超声能直接显示

胎儿解剖结构,可为诊断提供依据。然而,常规超声诊断结果受到周围结构影响,使其诊断结果存在误诊、漏诊情况^[3],且多以鼻唇冠状切面进行筛查,对唇裂是否合并腭裂情况难以做出评价。随着三维超声在临床中的深入应用,以二维、三维超声参数

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作为基础的颅脑冠状切面鼻尖偏斜法对于胎儿颜面部畸形具有重要诊断价值^[4],但因我国临床应用时间较短,此方法与常规超声对比有何优势尚无确切定论。因此,本研究选择早期胎儿颜面部畸形,分析超声颅脑冠状切面鼻尖偏斜法与常规超声诊断价值。

1 资料与方法

1.1 一般资料

研究对象为 2019 年 1 月到 2024 年 1 月在我院体检的 120 例疑似胎儿颜面部畸形的孕妇。年龄为 24~35 岁,平均(31.45±5.74)岁;孕周为 11~16 周,平均(12.45±2.64)周。

1.2 纳排标准

纳入标准:体检资料完整,且在我院分娩或引产者;既往孕妇有畸形胎儿分娩史、孕期服药史、孕早期感冒史、放射线接触史或宫内感染史等高危因素者^[5];主诉以往存在分娩异常胎儿史、死胎史、自然流产史;有颜面部畸形基因遗传与家族史者;羊水过少或过多者;知情同意。排除标准:合并意识障碍或精神类疾病者;合并恶性肿瘤者;合并子宫肌瘤者;双胞胎妊娠;非自然妊娠者;临床资料不全;合并免疫系统紊乱或免疫功能障碍者。

1.3 方法

常规超声检查方法:孕妇采取卧位应用超声仪(生产企业:美国 GE 公司;型号:E8)检查,频率为 3.5MHz,规范化颜面部具体检查切面包括:(1) 双眼球水平切面;(2) 鼻唇冠状切面;(3) 颜面部正中矢状切面,并显示胎儿面部侧面轮廓线。最后,留存颜面部双眼球水平横切面、鼻唇冠状切面与正中矢状切面,判定胎儿颜面部畸形状况。

超声颅脑冠状切面鼻尖偏斜法:首先行二维超声检查,获得胎儿面部正中矢状面、颈项透明层,测量鼻骨长度、额-上颌角、额-鼻角、鼻前组织厚度、上下颌面角及颜面轮廓线等。随后采用三维超声,旋转探头,获得颅脑冠状切面;并见颅脑椭圆形回声环,"蝴蝶型"脉络丛以脑中线左右对称充满侧脑室,随后探查对称关系,综合判定胎儿颜面部畸形状况。

1.4 统计学方法

采取 SPSS 23.0, 计数资料 χ^2 检验; 计量资料 t 检验;以 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 不同孕周超声图像面部结构显示情况

不同孕周超声图像面部结构显示情况对比无差异 ($P > 0.05$),见表 1。

表 1 面部结构显示情况(n=120)
Table 1 Facial structure display(n=120)

Gestational age	Number of cases	Ultrasonic		
		Display	Do not display	Display rate
11~12weeks	45	38	7	84.44%
13~14weeks	56	50	6	89.29%
15~16weeks	19	17	2	89.47%
χ^2	-			0.620
P	-			0.735

2.2 胎儿颜面部畸形符合情况分析

经证实,52 例出现颜面部畸形:耳部缺损 1 例、鼻裂 5 例、小下颌畸形 4 例、鼻发育不良 4 例、牙槽突出 6 例、单侧唇腭裂 13 例、双侧唇腭裂 8 例、单纯唇裂 11 例,超声颅脑冠状切面鼻尖偏斜法最终胎儿颜面部畸形确诊率(84.61%)明显高于常规

超声(61.54%)($\chi^2=26.460, P=0.001 < 0.05$)。

2.3 病例胎儿超声图像

上唇皮肤连续性中断,中断处表现为无回声带,无回声带延伸至鼻孔,见图 1(A、B);上唇皮肤连续性中断,无回声带稍宽,鼻结构异常,见图 2(A、B)。

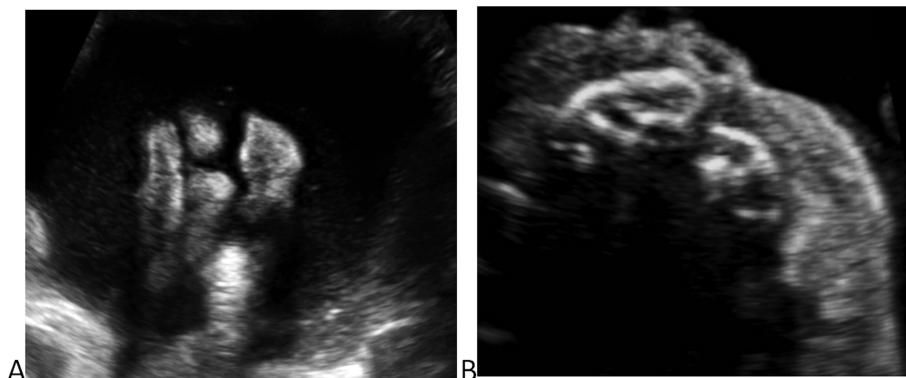


图 1 单侧唇腭裂常规超声图像示例

Fig.1 Example of conventional ultrasound images of unilateral cleft lip and palate

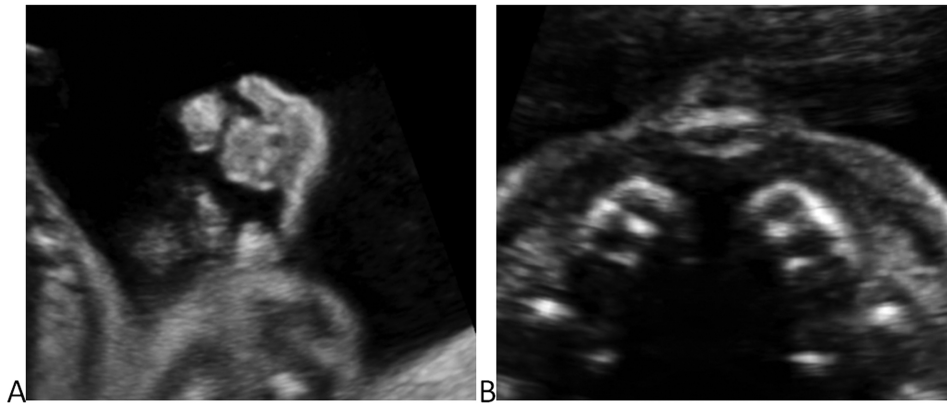


图2 双侧唇腭裂常规超声图像示例

Fig.2 Example of conventional ultrasound images of unilateral cleft lip and palate

2.4 诊断效能对比分析

ROC 曲线结果显示, 常规超声的诊断灵敏度和特异度为

(80.25%、91.36%) 低于超声颅脑冠状切面鼻尖偏斜法

(91.26%、98.63%), 见表 2。

表 2 诊断效能对比分析

Table 2 Comparative analysis of the diagnostic efficacy

Inspection method	AUC	95%CI	Error	P	Sensitivity (%)	Specificity (%)	Positive predictive value	Negative predictive value	Youden index
Conventional ultrasound	0.888	0.421~0.923	0.093	0.012	80.25	91.36	87.84	75.74	0.642
Ultrasonic Craniocerebral Coronal Section Nasal Tip Deviation Method	0.921	0.332~0.857	0.052	0.009	91.26	98.63	91.52	89.35	0.731

3 讨论

新生儿颜面部畸形是指婴儿出生时即表现出的各种面部结构异常, 后期手术治疗对患者家庭造成沉重的负担。因此, 妊娠期进行胎儿畸形的筛查具有重大意义^[6]。目前临床上诊断胎儿颜面部畸形有绒毛活检及羊膜腔穿刺等准确率较高的方法, 但会对母体、胎儿健康产生损害, 且设备有限^[7]。常规二维超声作为常用诊断方法, 可监测围产期胎儿生长发育、下颌畸形、唇裂畸形等情况, 但对早期胎儿颜面部畸形存在误诊、漏诊等^[8]。随着科技的发展, 三维超声成像技术广泛应用于临床^[9], 采集胎儿三维影像数据, 通过人机交互方式, 实现图像的剖切、旋转和放大, 数据更加准确, 图像更加直观, 对于胎儿颜面部急性诊断具有重要优势。本研究分析了常规超声与超声颅脑冠状切面鼻尖偏斜法对胎儿颜面部畸形诊断价值。

本研究结果显示, 超声颅脑冠状切面鼻尖偏斜法确诊率明显高于常规超声($P < 0.05$), 与 Shreeve N 等^[10]研究结果部分一致。分析原因为, 常规超声畸形排查容易受到胎儿体位影响, 漏诊率较高, 而超声颅脑冠状切面鼻尖偏斜法通过对探头进行细微的角度调整, 可获得一个更加有利于观察颅脑中线结构和颜面部软组织的切面, 避免了胎头位置遮挡, 重复性较好, 提高了诊断准确率^[11]。最后, 本研究显示, 常规超声诊断灵敏度和特异度 (80.25%、91.36%) 低于超声颅脑冠状切面鼻尖偏斜法 (91.26%、98.63%), 由此可见超声颅脑冠状切面鼻尖偏斜法对

于胎儿颜面部畸形的早期诊断更有优势。脑冠状切面鼻尖偏斜法可以更有效地展示脑室系统、透明隔腔、胼胝体以及与颜面部畸形相关的颅底结构, 尤其是在常规切面无法充分展示的区域。通过脑冠状切面鼻尖偏斜法, 可通过三维和二维超声数据从多切面进行检查, 观察的舌活动范围增加到鼻腔, 因此可进一步提升唇腭裂诊断准确率^[12]。因此, 倡导使用超声颅脑冠状切面鼻尖偏斜法筛查, 为孕产妇的后期干预措施提供参考意见。

综上所述, 早期胎儿颜面部畸形诊断中, 常规超声可实现清晰的颜面部图像, 但其诊断准确率、灵敏度与特异度均逊于超声颅脑冠状切面鼻尖偏斜法, 这对于提升新生儿质量, 改善妊娠结局具有重要价值。

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