

Abstract

Background

Bronchopulmonary malformations (BPMs) consists of a broad spectrum of developmental abnormalities, ranging from abnormal lung with normal vasculature to abnormal vasculature with normal lungs and lesions with both parenchymal and vascular abnormalities. Terminology remains a problem, the use of descriptive approach is strongly supported in practice. The aim of our study was to assess the accuracy of computed tomography (CT) and magnetic resonance imaging (MRI) in classifying the different types of BPMs and to correlate this imaging with pathologic finding.

Materials and methods

We identified 24 patients referred to our institution between years 2010 and 2015 with prenatal ultrasound (US) diagnosis of BPM, who had undergone surgical resection. Postnatal chest CT scans and fetal MRI of these patients formed the basis of our retrospective study. Two radiologists blinded to the histopathological results reviewed all CT and fetal MRI scans. Detected lesions were classified by predetermined criteria. These data were correlated with histopathological results.

Results

The significant diagnosis overlap of 71% (17 cases out of 24) between the CT and histology was observed. The significant diagnosis overlap between MRI and histology was observed of 80 % (8 cases out of 10). The diagnosis overlap of 80 % between the MRI and CT was observed. Out of 24 lesions 18 (75%) were located in lower lobes

Conclusion

We recommend perform the fetal MRI and CT examination of the lung with a description of the lesion according to predefined criteria. In our study we present the concept of a structured radiological approach to description of complexity of pulmonary lesions in chest CT scan and in fetal MRI, which in more detail takes into account pathological character of lung changes.

Key words: bronchopulmonary malformation, fetus, child, computed tomography, fetal magnetic resonance imaging, determined criteria of evaluation.