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Cavum Septi Pellucidi Obliteration (OCSP) Revisited: Imaging, Genetics, and Pregnancy Outcomes

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Background & Aim

The cavum septi pellucidi (CSP) can be depicted in most fetuses after 17 weeks and physiologically obliterates by the end of the 3rd trimester. Its visualization is part of the basic neuroscan, screening for midline anomalies. However, early absence of fluid in the cavum (obliteration) may be a normal variant unrelated to adverse outcomes. Our aim was to revisit the neuroimaging workup, associated findings, genetics, and outcomes of fetuses presenting an obliterated CSP (OCSP).

Methods

This retrospective study included fetuses scanned at a single tertiary center, where a complete or partial OCSP (POCSP) was observed during a routine or dedicated anomaly scan.
OCSP was defined as absence of fluid in the CSP with a normal corpus callosum (CC) structure and presence of the septal leaves separating the frontal horns of the lateral ventricles.
All fetuses underwent dedicated neurosonography and a full anomaly scan to detect non-CNS anomalies. Demographic data, structural findings, additional tests (genetics, MRI), and postnatal outcomes were documented.

Results

Seventy-nine cases were included. Mean gestational age (GA) at diagnosis was 26.4 weeks (range 20–36); 68% of cases were observed on the 2nd-trimester scan. OCSP was partial (POCSP) in 5 cases (6.3%), with a small amount of residual fluid observed.

79 Cases included	**26.4w** Mean GA at diagnosis (20–36w)
78% Isolated OCSP	**15.1%** Referred for suspected callosal anomaly
35% / 13% CMA / WES performed	**2.5%** WES pathogenic yield

In 8 fetuses a CNS anomaly and in 11 a non-CNS anomaly was observed. Fetal MRI was performed in 16.4% of cases, all unremarkable. CMA was performed in 35%, all normal. WES was performed in 13%, positive in two cases (2.5%): a TBX20 variant related to congenital heart disease and a STAT3 variant not specifically related to midline anomalies; the latter pregnancy was terminated. Neither positive case had associated structural anomalies.

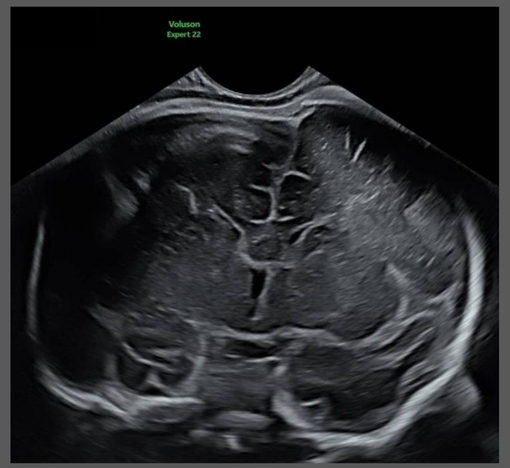


Figure 1. Associated Structural Findings

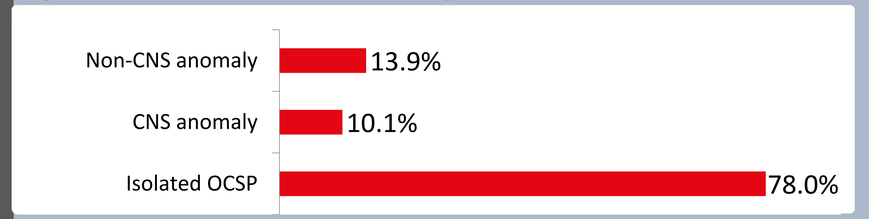
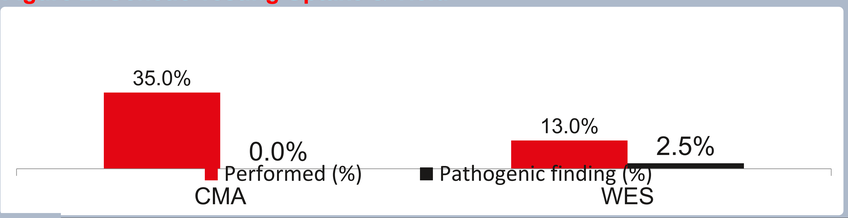


Figure 2. Genetic Testing Uptake & Yield



Conclusion OCSP requires neurosonographic assessment to rule out associated anomalies but is a benign, isolated finding in 78% of cases. Absence of fluid in the CSP poses a technical challenge for assessment of the CC, yet in all our cases the CC was morphologically normal.

Keywords
Cavum septi pellucidi · Fetal neurosonography · Whole exome sequencing · Fetal MRI