

## **Diffusion Tensor MRI Tractography (DTT) Reveals Altered Brainstem Fiber Connections Accompanying Agenesis of the Corpus Callosum (ACC)**

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**Introduction:** ACC is a developmental anomaly wherein interhemispheric cerebral fibers fail to cross into the contralateral hemisphere. Using DTT, we report two ACC cases with altered brainstem fiber connections involving middle cerebellum peduncles and transverse pontine fibers.

### **Cases:**

Case 1: A 22 year-old woman with seizures, mental retardation and behavioral abnormalities. Case 2: A 50 year-old man with syncope, cognitive impairments and bilateral palmomentary responses.

### **Imaging Procedures:**

Whole brain DTT was performed using streamtube tracing and culling techniques. DTT of a normal subject was obtained as a control.

**Results:** Conventional brain MRI displayed complete absence of the corpus callosum in both cases. Whole brain DTT showed no corpus callosum fibers crossing the midline in either ACC case. Instead, robust fiber bundles passing through middle cerebellum peduncles via transverse pontine fibers were seen.

**Conclusion:** DTT was useful in visualizing expected and unexpected alterations of white matter fiber connections in ACC.