

Development of a Curable Patch for Fetoscopic Surgery on Spina Bifida Defects

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Abstract

Spina Bifida is a condition that occurs in human embryos within the 1st month of pregnancy that results in an incompletely formed spinal cord and the neural tube defect is often formed before the mother knows she is pregnant. The vertebrae overlying the open portion of the spinal cord do not fully form and remain unfused and open allowing the abnormal portion of the spinal cord to protrude through the opening in the bones.

Surgeons have demonstrated that coverage of Spina Bifida lesions is feasible through minimally invasive fetoscopic surgery. A PTFE patch was sutured to the surrounding skin in their initial feasibility study, however PTFE is not an ideal material. In collaboration with Dr Mark Denbow, a fetal consultant at St. Michael's Hospital, Bristol, the aim is to develop a novel material which is easy to use in a fetoscopic surgical procedure and forms an inert, adhesive, impermeable, elastic barrier when in place over the lesion on the fetus' back.