Percutaneous fetoscopic patch coverage of spina bifida aperta in the human--early clinical experience and potential.

OBJECTIVE: The current operative approach for fetal repair of spina bifida aperta requires maternal laparotomy and hysterotomy. Following technical feasibility studies in sheep, we performed percutaneous fetoscopic patch coverage of this lesion in 3 human fetuses between 23 + 4 and 25 + 3 weeks of gestation. METHODS AND RESULTS: Whereas the patch detached in the first case 3 weeks after the procedure, it covered the exposed neural tissue in the 2 other fetuses beyond their delivery. Two of the three children survived, but 1 unexpectedly died from a ventilation problem in its 3rd week of life. In 1 of the 2 survivors, ventriculoperitoneal shunt insertion was delayed. CONCLUSIONS: Percutaneous fetoscopic patch coverage of spina bifida aperta is feasible in human fetuses and offers a substantial reduction of maternal trauma compared to open fetal repair. Further clinical experience is now required before the efficacy of the new approach to protect the exposed neural tissue from mechanical and chemical damage and to improve hindbrain herniation can be evaluated.