Surgical treatment of multiple ventricular septal defects using a biologic glue.

Authors: Leca F, Karam J, Vouhe PR, Khoury W, Tamisier D, Bical O, Da Cruz E, Thibert M

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Abstract:

The closure of multiple ventricular septal defects remains a surgical challenge. Mortality and morbidity are high. Left ventricular incision and multiple patches or stitches impair septal motion and function. We searched for a method that would cause minimal left ventricular and septal dysfunction. The use of fibrin seal for closing ventricular septal defects was considered. The method was first tested in animals so as to assess the internal resistance of the fibrin seal to stretching and fragmentation in addition to its adhesiveness and hence the absence of left-to-right embolization of the fibrin seal clot and the long-term success of the ventricular septal defect closure further to complete resorption of the ventricular septal defect clot. This experimental work was very satisfactory. Between April 1986 and September 1991, 15 children were operated on with the use of this technique. The overall hospital mortality rate was 6%. There were no reoperations for residual ventricular septal defects. All the long-term survivors (n = 13) were in excellent clinical condition with no or trivial residual shunt attested by color flow mapping investigation. This experimental and clinical experience suggests that satisfactory results can be achieved with the use of fibrin seal for the closure of multiple muscular ventricular septal defects.