Fibrin glue instillation for profuse sternal bleeding

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Bleeding from the edges of the sternotomy usually ceases spontaneously or after adequate application of bone wax, alone or in combination with focal application of thermal cautery to the spongiosa. In some instances, however, the excessive bleeding may persist despite all these measures. We describe a simple method to achieve the prompt cessation of sternal bleeding by simple instillation of fibrin glue into the sternal spongiosa.

Technique

In a patient with excessive bleeding from the edges of the sternotomy, fibrin glue (a mixture of fibrinogen and thrombin) is injected directly into the spongiosal tissue of the sternum using a blunt-tipped needle. The needle is slightly curved and is inserted through a cut sternal edge into the region of bleeding (Figure 1). The clinical result is promptly evidenced by the immediate cessation of bleeding. For repeated use, the blunt-tipped needle must be changed because of the immediate effect of needle obstruction by the glue.

Since 1997 we have used this simple method in 60 patients with excessive bleeding from the edges of the sternotomy. This represents an incidence of 0.3% of all cardiac surgical procedures performed at our institution during this period. To date we have observed no complications such as embolization of fibrin glue, sternal infection, or dehiscence in these patients.

Discussion

Local instillation of fibrin glue into the sternal spongiosa is a simple and immediately effective method to stop excessive bleed-

Figure 1. Fibrin glue is injected into the region of maximal bleeding from the sternal edges. A blunt-tipped needle is inserted directly into the sternal spongiosa.

ing from the edges of the sternotomy when other measures are ineffective. Fibrin glue has been used for a long time in almost all fields of surgery.^{1,2} However, application of fibrin glue cannot replace a precise surgical technique and the skill of the surgeon. Perfect, accurate surgical procedure with atraumatic management of the tissue and meticulous hemostasis avoids the necessity for the application of fibrin glue in most instances. We therefore consider the main indication for the use of fibrin glue to be to stop bleeding from the technically inaccessible spongiosal tissue of the sternal edges after sternotomy.

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