Hemostat

Surgical tool used in many surgical procedures to control bleeding.

Hemostasis plays a central role throughout neurosurgery. In microneurosurgery, a bloodless operating field under an operating microscope allows fast and effective surgery, thereby reducing the risk of postoperative hemorrhage. Apart from mechanical methods, such as positioning of the patient's head and body, bone plugging, suction, and metal clips, neurosurgical hemostasis is achieved mainly with bipolar coagulation, which permits optimal control of hemorrhage, allows for fine coagulation of small vessels and is safe in patients with pacemakers and defibrillators. Gelatin sponge is a non-antigenic protein that can absorb 45 times its weight in blood, and, when wet, is plastered to the irregularities of the bleeding surface. It enables the repair of torn veins, such as the superior sagittal sinus, without compromising the patency of the vessel. Surgicel® (Johnson & Johnson, New Brunswick, NJ), the first oxidized cellulose to be introduced, is used to control capillary, venous, or smaller arterial bleeding because it acts as a matrix for the formation of a clot. Over the past few decades, research on the development of hemostatic agents has shifted to the use of fibrin sealants and flowable agents such as Tisseel Fibrin Sealant® (Baxter, Deerfield, IL), Evicel Fibrin Sealant® (Ethicon, Somerville, NJ) and FloSeal® (Baxter). Very recently, advanced hemostats with sealant properties similar to those of fibrin sealants have been introduced, such as Tachosil® (Baxter, Deerfield, IL) and Hemopatch Sealing Hemostat® (Baxter). Due to the different properties of these products it is important that we understand the efficacy of each hemostatic agent in different neurosurgical settings, such as in the control of parenchymal, subdural and epidural bleeding in both cranial and spinal surgery. The aim of a work of Signorelli et al. was to review the principal technical aspects of hemostatic agents to optimize their use in different neurosurgical procedures [1)].

1)
Signorelli F, Montano N. Use and Efficacy of Hemostats in Neurosurgery. Surg Technol Int. 2020 Nov 28;37:414-419. PMID: 32944921.