Surgicel

One of the most widely applied absorbable hemostatic materials.

Manufactured by Ethicon Inc. of Johnson & Johnson Medical Limited.

Surgicel™ is an oxidized cellulose polymer, with polyglucuronic glucuronide as its effective functional unit. Blood absorption initiates within 1 day after its application, but complete absorption requires 4 to 8 weeks.¹

Extensive clinical evidence has shown that the application of Surgicel™ during cerebral surgery rapidly promotes blood clotting and effectively controls bleeding. Moreover, Surgicel™ has been demonstrated to display superior tissue compatibility compared to other resorbable hemostatic agents.² ³ ⁴.

Complications

Compared to other hemostatic substances, Surgicel™ has an especially high level of tissue compatibility; however, occasional cases of foreign body reactions, such as abscesses, inflammation, and giant-cell granuloma, have been reported with its use.⁵ ⁶ ⁷ ⁸ ⁹.

Interestingly, in each case of Surgicel™-induced giant-cell granuloma, the granuloma was initially misdiagnosed as a tumor. For example, Tefik et al. reported a case of Surgicel™-related granuloma in a laparoscopic kidney tumor resection surgery that was misdiagnosed as tumor recurrence.¹⁰

Gao et al. reported a case of Surgicel™-related granuloma that was misdiagnosed as a tumor 1 month after hysterectomy and right oophorectomy.¹¹ These previous cases of granuloma formation in organs outside the nervous system were ultimately found to be due to chronic inflammatory reactions. Overactivated giant cells assembled around the Surgicel™, forming the chronic giant-cell granuloma.¹²

A similar immune-related mechanism may have contributed, at least in part, to the Surgicel™-related granuloma observed in the brain of our patient. However, a Surgicel™-related granuloma in the brain will have distinctive features from those involving other organs because the blood-brain barrier functions to prohibit giant cell infiltration and assembly in the brain.¹³

Giant cell granuloma

Although low, the risk of developing Surgicel™-related granuloma after surgery indicates a need for caution in applying Surgicel™, especially when it is used solely for the purpose of achieving a hemostatic effect. However, the risk of granuloma may be reduced by removing the unabsorbed Surgicel™ after the hemostatic effect has been achieved, or by reducing the amount of Surgicel™ applied. When a tumor-like space-occupying lesion is observed in the intracranial surgery bed after surgery employing Surgicel, the rare possibility of Surgicel™-related granuloma should be considered.¹⁴

¹ Potter MJ, Chauhan A, Rowe D. Surgicel: an effective tool to avoid free flap pedicle kinking in the head.


