DEVICE FOR DELIVERY OF POWDERED HEMOSTATIC AGENTS

FIELD OF THE INVENTION

[0001] The disclosure relates generally to multilayered hemostatic devices. More particularly, the disclosure relates to multilayered hemostatic devices including a powdered hemostat and a rapidly dissolving/degrading film.

BACKGROUND

[0002] Hemostatic agents and sealants are currently used as an aid to stop bleeding, including hemorrhaging during surgery. Hemostatic agents are typically presented in the form of solid fabrics, powders or granules, or as liquids. Flowable hemostatic agents provide for good contact with irregular surfaces which are typical of wounds so that good hemostasis can be achieved. However, the flowable nature of particulate hemostatic agents also renders them relatively difficult to handle in use. Current powdered hemostats are conventionally applied with plastic bellow type applicators. Controlled and precise application of powders with this type of delivery system can be challenging, resulting, for example, in the hemostatic agent being blown away from the wound site such that a significant portion of the hemostatic agent can be wasted.

SUMMARY

[0003] One aspect of the disclosure provides a multilayered hemostatic device including a wound-contacting first layer including carboxymethyl cellulose the first layer being soluble under physiological conditions, such that the first layer will dissolve when in contact with a fluid from a wound, a second layer including a powdered hemostatic agent provided on the first layer, and a third layer including at least one of gauze, oxidized cellulose, or collagen provided on the second layer, wherein the first layer and the third layer encapsulate the second layer and the hemostatic agent comprises one of fibrinogen, thrombin, fibrin monomers, or the combination of thrombin and gelatin. The first layer and the third layer can have perimeter edges and the first layer and third layer are sealed along the perimeter edges.

[0004] Further aspects and advantages will be apparent to those of ordinary skill in the art from a review of the following detailed description. While the methods and compositions are susceptible of embodiments in various forms, the description hereafter includes specific embodiments with the understanding that the disclosure is illustrative, and is not intended to limit the disclosure to the specific embodiments described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] For further facilitating the understanding of the present invention, two drawing figures are appended hereto.