



Control Bleeding. Save Lives.

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A New Hemostatic Agent: Initial Life-Saving Experience With Celox (Chitosan) in Cardiothoracic Surgery.

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Abstract: Celox (MedTrade Products Ltd, Cheshire, UK) is a proprietary preparation of chitosan, indicated for moderate to severe hemorrhage and currently used for hemostasis in the emergency and military settings. We describe its lifesaving use in 2 patients undergoing cardiothoracic surgery in which conventional techniques had failed.

Comment: Increasing awareness of the importance of rapid control of hemorrhage in the military trauma setting has focused on methods of reducing hemorrhage at the point of injury. A number of agents have been assessed for this role in the military environment. These include bandages impregnated with chitosans (eg, HemCon dressings [Hem-Con Inc, Portland, OR] or QuikClot zeolite powder dressings [Z-Medica, Wallingford, CT], or both) and more recently chitosan granules (Celox). The experience with HemCon (HemCon Inc) and QuikClot (Z-Medica) in experimental models has been mixed, although there is evidence that the use of HemCon bandages have been significantly beneficial on the battlefield [7]. Celox has been shown to be more effective in vivo in an experimental model of trauma, possibly due to its ease of application. The most important aspect of its use is to ensure that the Celox granules are in direct contact with the site of bleeding. Although chitosans are highly biocompatible, being composed of glucosamines, we considered it safer to remove as much excess product as was possible. Its use in the setting of major vascular injury should be considered an adjunct to, not a replacement for, surgical repair. The late ligation of the subclavian artery in the second case, almost certainly a complication of the management of his ischemic heart disease, confirms this, but it also shows how effective Celox was initially. These are, we believe, the first two reported uses in surgery, although we are aware of previous unreported uses. In our cases, the usage of Celox seemed to have been lifesaving. Indeed the second usage, apart from being in the operating room, was almost as suggested on the packet. Given that it clots heparinized blood, it would seem sensible that future use in cardiac surgery is guided in this knowledge to apply it after the heparin has been reversed. Furthermore, care should be used in the presence of cell savers. It would seem that further studies to ascertain its role in surgery are strongly indicated.

" I believe Celox to be a real advance in hemostatic agents, particularly in the setting of life threatening bleeding. I have used it in situations where I believe it has saved lives where other treatment modalities have failed. I would commend its use."

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