Letter to the Editor

Potential for Felt Complications in Surgical Aortic Dissection Repair

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To the Editor:

We read with interest the recent study by Dr. Kunihara and associates[1)] wherein they recommended the liberal use of gelatin-resorcinol-formaldehyde (GRF) glue for surgical repair of acute aortic dissection with the aid of felt reinforcement. There are possible limitations for the use of felt in treating aortic dissection. Indeed, the potential proinflammatory reactions when combined with GRF glue has not been adequately discussed by the authors.

Surgical felt has had little testing with respect to inflammation and aortic wall remodeling in experimental models.[2)] As Dr. Kunihara and associates[1)] point out, the glue may be proinflammatory. For example, redissection or intimal necrosis caused by biological glue has also been reported.[3)] The Teflon felt used to reinforce the dissection following glue placement may also promote chronic inflammatory conditions.[2)] For example, inner felt placement has been shown to be associated with localized inflammatory reactions, as revealed in a patient explant, whereby lymphocytes, macrophages, and eosinophilic lymphocytes were demonstrated in vascular tissue surrounding the felt.[2)] And in dogs, the aortic wall chronically wrapped with nonbiodegradable polytetrafluoroethylene (PTFE) felt induces a reduced thickness and diminished vessels in the adventitia.[4)]

Lastly, there is concern about the use of felt in anastomosis techniques. Several investigators have used two layers of Teflon felt strips for reinforcing the anastomosis, and they have closed false channels using a biological glue composed of gelatin, resorcin, and formaldehyde (GRF glue).[5)] However, this may produce a comparatively narrow native aorta, resulting in some relative stenosis at the anastomosis site.[2)] Aortic stenosis as the result of using felt strips has been recently reported in three aortic dissection cases where hemolytic anemia ensued.[6)]

Alternative methods exist. For example, Dr. Floten et al. have reported a method for folding the adventitia outside-in so as to reinforce the intima.[7)] Additionally, several endovascular techniques are emerging that have a positive and immediate benefit on the expansion of the true lumen and later positive remodeling of the false lumen thrombus.[8)]

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Reply:

We appreciate the comments of Dr. McLachlan and colleagues.[1)]

We agree that the use of surgical felt is associated with promoting an inflammatory condition. We admit and regret that our article lacks discussion about the potential proinflammatory reaction of felt combined with GRF glue.[2)] However, we would like to emphasize that we use felt strips only for reinforcement at the outer suture line. We have routinely performed postoperative computed tomography before discharge on all patients except two and in doing so have experienced neither aortic stenosis nor hemolytic anemia.[3,4)] Even if GRF glue may be inappropriately used, causing tissue necrosis, we believe felt reinforcement may prevent pseudoaneurysms, which have a great risk of rupture. Indeed, we have experienced no case with late pseudoaneurysm after the combined use of GRF glue and outer felt strips except one because of methicillin-resistant *Staphylococcus aureus* (MRSA) mediastinitis.[2)] In our two cases that underwent late reoperation, we found it somewhat cumbersome to dissect adhesion caused by felt strips; nevertheless, it did not prevent the primary operative goal. Since that goal of this life-threatening operation may be getting the patient out of the operating theater, we will continue using felt strip until other optimal alternatives are developed.

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