Impact Of Hemostatic Polyethylene-gylcol-coated Collagen Patch In Patients On Acetylsalicylic Acid Undergoing Minimally Invasive Surgery

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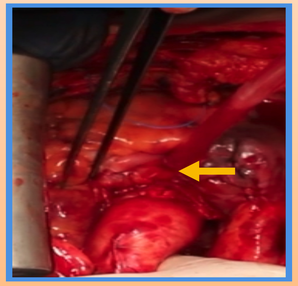
Objective

- Prolonged bleeding during minimally invasive surgery on patients with impaired coagulation is usually difficult to manage, presents a risk for the patient and increases the time and cost of surgery
- Polyethylene glycol-coated collagen patch (PEG) (Hemopatch, Baxter, UK) is a recently developed hemostatic agent consisting of a specifically formulated collagen matrix, a protein-reactive monomer and a biocompatible dye
- It consists of a bovine-derived collagen pad, marked on one side with blue squares for easy visualization (nonactive side)
- On contact with blood and fluids, the PEG-based sealant forms covalent bonds with blood proteins and the underlying tissue, thus fixing the pad to the application site and sealing the wound
- Subsequently, blood penetrates the collagen pad, where platelets become entrapped in the collagen fibers, with the resulting formation of a fibrin clot
- This study evaluated the efficacy and safety of the sealing hemostatic patch compared with standard hemostatic fleece in patients on acetylsalicylic acid (ASA) undergoing minimally invasive aortic surgery (mAVS)

Methods

- During a one-year period, 15 patients on ASA undergoing mAVS treated with PEG collagen patch were compared with the patients operated with standard of care (SOC: dry or wet gauze compression or similar) (N=15)
- The primary end point was the cessation of moderate, non-pulsating bleeds from the suture line of the aortic incision and/or dacron graft within 3 minutes of applying the hemostatic agent or SOC
- Secondary endpoints included post-surgical blood loss, the number of units of autologous blood products transfused, surgical revision rates due to bleeding and cost efficiency

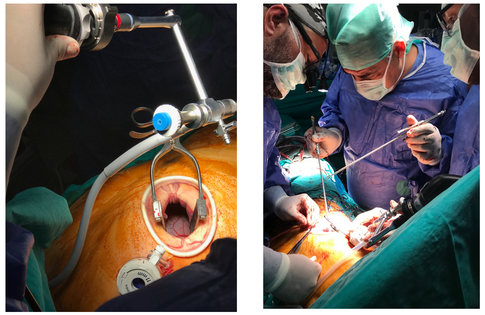




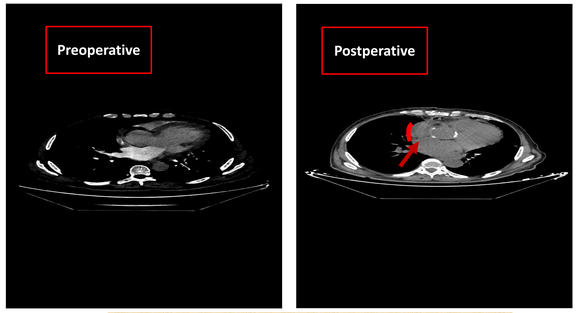
Results

- Baseline characteristics were similar in both groups
- Bleeding occurred mainly from:
  - ✓ Aorta (70%)
  - ✓ Right ventricle (17%)
  - ✓ Right atrium (10%),
- More often from a vessel (87%) than tissue (37%), and was assessed to be arterial in 83% of cases
- Successful hemostasis within three minutes in the study group was signifcantly better than control (80% vs 54%, p=0.032)
- Postoperative bleeding and transfusion of blood/blood products were significantly lower in the study group

	PEG Collagen Patch (N=15)	Standard of Care (N=15)	p
Baseline Platelet Count /Htc (n/%)	110.000∓35.000 mm^{-3}/9.2∓2 $g.dL^{-1}$	135.000∓38000 mm^{-3}/10.1∓2 $g.dL^{-1}$	>0.05
Baseline Multiple Platelet Function Analyzer (U)	<10∓2	<10∓2	>0.05
Hemostasis Success Rate (%)	80 (12/15) *	54% (8/15)	0.032
Postoperative Bleeding (ml/24 h)	650∓100*	1050∓200	0.024
Inotropic Support (n)	8	11	>0.05
Respiratory Support (h)	8.2∓1	12.3∓3	>0.05
Red Blood Cell Transfusion (48 h)	2.1∓0.6*	5.3∓2	0.012
Fresh Frozen Plasma Transfusion (48 h)	4.2∓2*	8.4∓2	0.002
Platelet Transfusion (48 h)	3.5∓2*	8∓2	0.001
Surgical Revision Due To Postoperative Bleeding (N)	2	6	>0.05
ICU Stay (d)	2.8∓0.8	3.6∓1	>0.05
Hospital Stay (d)	5.7∓2	7.2∓2	>0.05
Overall Cost Reduction (PEG vs SOC)	32.8%		



Minimally Invasive Approach: (RAT /J Sternotomy)



Preoperative/Postoperative 8th week CT

Conclusion

- On the basis of our limited experience, we conclude that PEG collagen patch provides sufficient hemostasis and wound sealing in mAVS
- The soft, thin, pliable, high liquid-absorption capacity, self-adherence, and sealing properties make it easy to use in minimally invasive surgery prone to bleeding
- Product is tissue friendly, dissolves within days represented by CT
- Further studies with larger patient population are warranted

No financial or regulatory disclosure

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