Retrospective review of practice and outcomes using a single brand biologic mesh at a District General Hospital

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Introduction:

In order to decrease the costs of utilisation for an expensive prosthetic reinforcement material in our hospital, it was decided in early 2017 that a single brand of biologic meshes was to be stocked in our unit.
After comparing several offers of the biologic meshes available on UK market at that time, the EGIS mesh distributed by Raise Healthcare was chosen by the surgical consultants and procurement department. Prior to this, the mesh has not been used in our hospital before.
Having been used in our unit for more than 5 years to date, with no reported incidents related to the mesh, we decided it would appropriate to conduct a retrospective study to look at patient's outcomes following abdominal hernia repair using EGIS biologic mesh.
EGIS® is a cell-free, non-pyrogenic collagen matrix mesh, non cross-linked, derived from porcine dermis. It is available in either 0.8mm or 1.5mm thicknesses and is indicated for abdominal wall repairs. It can be used in direct contact with the bowels (intra-peritoneal placement

Material and method:
After contacting the medical representative of the company providing this prosthetic material, it was noticed that around 12 EGIS meshes were used in our hospital since it was first introduced. The investigating team have searched the operative logbooks available in our hospital, cross-checked with procurement provided data and only 8 patients were later identified and included in the study.
The study protocol was designed and following this, a retrospective review of the patient's written and electronic files was conducted.
The study looked at the following criteria: type of surgery, indication for use of a biologic mesh as per VHWG (ventral hernia working group) classification, average LOS (length of stay) and comparison with patients operated for similar pathology with synthetic mesh, post-op complications including surgical site occurrence and/or infection, length and outcome at follow-up.
Anonymised data is presented in Table 1.

Patient	Procedure	Indication for use	H.W.G. classification	LOS (days)	Post op complications	SSI/SSO	Outcome at follow up	Length of follow up & outcome to date	Discharge from follow-up
Patient 1 Code: 8240	Laparotomy. SB resection. Extended right hemicolectomy. End ileostomy. Rives- Stoppa repair - EGIS 30x21 cm	Incarcerated large recurrent incisional hernia	Grade 3	17	Seroma	No	*Postoperative seroma. * Parastomal hernia, non related	42 months	No (due to ?ileostomy reversal)
Patient 2 Code: 9233	Reversal of loop ileostomy and parastomal hernia repair with onlay mesh- EGIS 10x10 cm	Parastomal hernia and reversal of ileostomy.	Grade 3	3	No	No	No follow up recorded	58 months	Yes (as no follow-up at 5 years)
Patient 3 Code: 3759	Open repair of incisional hernia with sublay mesh – EGIS 10/15 cm	Recurrent incisional hernia 5 cm defect	Grade 1	1	1 cm superficial dehiscence	Yes (SSO)	Follow up via SAU	6 months	Yes
Patient 4 Code: 4900	Open repair of incisional hernia with sublay mesh - EGIS 26x18	Repair of incisional hernia	Grade 2	8	1-HAP 2-Wound infection 3-Recurrence two small hernia seen on CT	Yes (SSI)	Recurrence 2x small hernia seen on CT (!)	48 months (F-up planned after CT)	No
Patient 5 Code: 7575	Open repair large right flank incisional hernia – Versatex retromuscular mesh + EGIS 10x15 cm inlay	Repair of peritoneal tear within TAR plane dissection	Grade 2	7	1-Wound infection 2-Wound dehiscence.	Yes (SSI)	Wound dehiscence/wound infection.	6 months	No
Patient 6 Code: 3621	Open repair incisional hernia with onlay mesh – EGIS 25/18	Repair of large incisional hernia	Grade 2	4	1-Post operative haematoma treated conservatively	No	Still under follow up for resolving post operative wound haematoma	5 months	No
Patient 7 Code: 7225	Open mesh repair incarcerated right inguinal hernia and SB resection and anastomosis – EGIS 6/8 cm	Repair of incarcerated right inguinal hernia & small bowel resection.	Grade 2	7	No	No	No follow up recorded	11 months	No
Patient 8 Code: 3089	Laparotomy, de-functioning loop colostomy, open modified Lichtenstein repair of left recurrent inguinal hernia - EGIS 10/15	Repair of incarcerated recurrent left inguinal hernia & large bowel perforation	Grade 4	13	Midline laparotomy wound infection	Yes (SSI)	N/A (too soon)	1 month	No

Results:

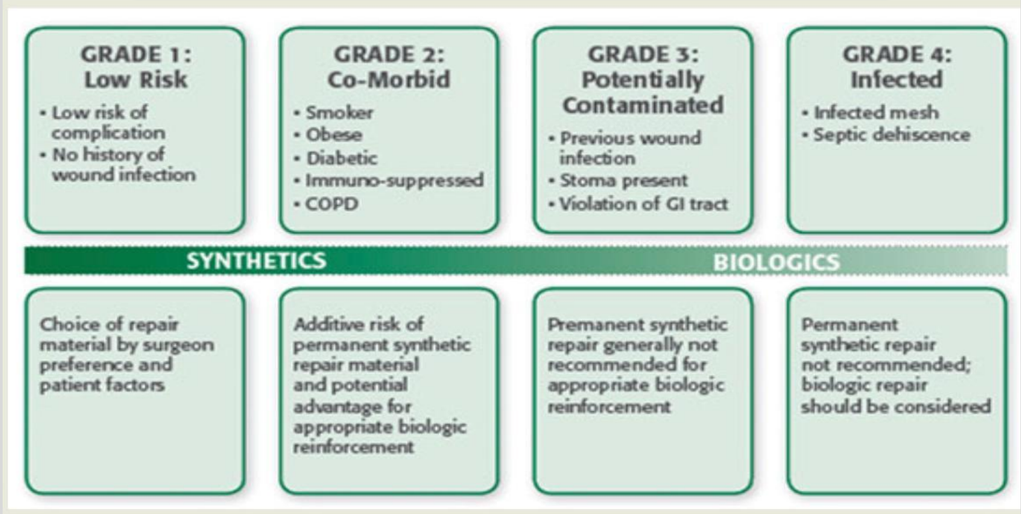
There was no mortality noticed in the 8 patient studied. Two of the patients had incarcerated inguinal hernias and 6 had ventral abdominal hernia repairs. Five patients were elective cases.

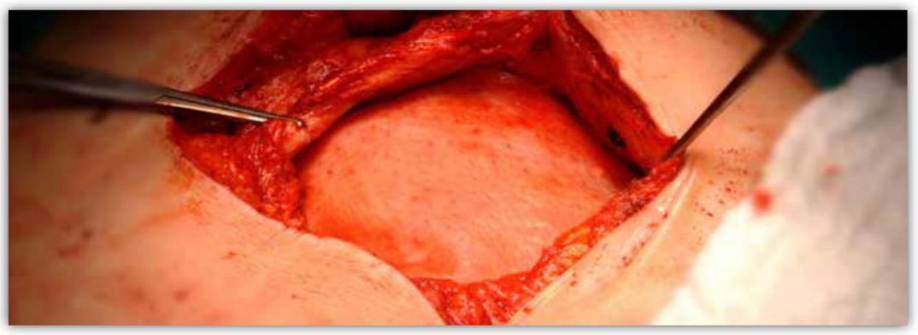
The indication for using biologic mesh was not in keeping with VHWG classification, one patient in the study was grade 1 VHWG. Only 3/8 patients were grade 3 or 4.

The average LOS was approx. 1 week (7.5 days) which is the expected LOS in our Trust for patients undergoing open repair of large ventral hernias (AWR) or patients undergoing bowel resection/stoma formation following acute presentation with obstruction secondary to complicated hernias. Overall, the LOS of patients who had a biologic mesh inserted was similar with the patients having abdominal wall surgery with other prosthetic materials.

Majority of patients (75%) had some type of adverse post-op events, related to recent abdominal wall surgery (see table). Four out of 8 patients (50%) developed an SSI/SSO and 3 required antibiotics to treat this.

The median follow-up to date for the cohort is 22 months, but majority of patients (6/8) are still under surveillance. One patient has documented recurrence on imaging (at approx. 4 years follow-up).





Conclusions:
The biologic mesh studied proved itself as a reliable product and provided a durable repair in the cases where it was used, with a median follow-up of 22 months.
It was noticed that almost half of the cases (3 out of 8) were emergency presentations for complicated ventral (1) or inguinal hernias (2), the complexity of these cases, compared with elective cases being higher (higher ASA grade patients, non-optimised, bowel obstruction present in all 3 cases).
The outcome of the study recommends to continue utilising this product, as it has been proven reliable in abdominal wall reinforcement in a variety of situations with a median follow-up of almost 2 years. There were no cases where mesh had to be explanted or any other incidents related to the prosthetic material. Nevertheless, the utilisation of the biologic meshes should be in keeping with indication of the VHWG classification (grade 3-4 patients).

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