

Preliminary experience in Laparoscopic distal pancreatectomy using the AEON™ vascular stapler

Aali J Sheen, SK Bandyopadhyay, M Baltatzis, R Deshpande, S Jamdar, N de Liguori Carino

Purpose: To investigate the effects on pancreatic leak rates as well as other outcome measures with the use of a new innovative endovascular stapler, AEON™.

- Data from patients undergoing distal or lateral pancreatectomy was analysed: Retrospective Review of Prospectively collected Data
- Greater Manchester and Cheshire cancer network
- Jan 2019 – Nov 21: 63 patients (32 males and 31 females)
- Median age: 65 years (range 21-84)
- Open:17, Lap:44, Rob.:2
- 37 with Splenectomy, 26 Spleen preserving
- Additional Procedure: 11 (Simultaneous hepatectomy, gastrectomy, adrenalectomy or cholecystectomy)
- Exclusion criteria : Abandoned Procedure or Patient not assessed for POPF.
- Statistical analysis was performed using SPSS software
- Categorical variables compared using Chi-square test or Fisher Exact test.
- Numerical variables using One Way ANOVA test.
- Statistical significance was defined as <0.05
- Focus of Interest: Demographics, Pancreatic fistula rates, length of stay and comprehensive complication index (CCI)

Division of the pancreas: Lexington AEON stapler (orange cartridge): 14 (22%), Endo-GIA Vascular 43 cases (68%), Lotus Ultrasonic energy device: 5 (8%) and Diathermy: 1 (2%).

POPF: 35 (Grade A 34, Grade C 1)

- Overall morbidity: 60%
- Mean Comprehensive Complication Index (CCI) was 11.08.
- 90 day mortality: 1.5%.
- POPF: Main contentious issue for pancreatic surgeons.
- Mean Drain Lipase on POD 3: Significantly higher in with other instruments (3951 U/L) versus AEON (475 U/L), p=0.022
- Mean CCI with AEON - 4.68, 13.16 with other instruments (p=0.089)
- Mean Length of Stay: Shorter by 4 days in the AEON group (6 and 10 days respectively, p=0.014)
- Reduced in POPF rates in AEON Group: 21.4% Vs 71.1 (p=0.022)
- No reported returns to theatre for bleeding in either group

Ongoing debate over what is the best method to reduce or even avoid a leak – Stapled vs Sutured

The ideal transection technique could be regarded as a major determinant of a reduced leak rate, which will inevitably have a net positive effect with other factors e.g. decrease length of stay and overall morbidity.

14 years of 462 consecutive distal pancreatectomies (Ferrone et al): Overall fistula rate -29% (greater than this study using the AEON™ stapler - 21.4%).

Ferrone et al, compared various techniques including; suture closure, falciiform patch as well as staple line closure with and without a reinforcement. (Leak rates- 24% to 33%, no significant difference regardless of the technique used).

Multivariate analysis: BMI > 30 kg/m², Male gender and an additional procedure undertaken were significant predictors of a pancreatic fistula.

Ferrone CR, Warshaw AL, Rattner DW, Berger D, Zheng H, Rewal B, Rodriguez R, Thayer SP, Fernandez-del Castillo C. Pancreatic fistula rates after 452 distal pancreatectomies: staplers do not decrease fistula rates. *J Gastrointest Surg*. 2008 Oct;12(10):1691-7; discussion 1697-8. doi: 10.1007/s11605-008-0536-2. Epub 2008 Aug 13. PMID: 18734597; PMCID: PMC3806097.

Limitation of this study: Retrospective review based on a small cohort of patients

- Notable difference in drain output and drain lipase measurements after switching to the AEON™ stapler were considered important to investigate and report especially as a reduction in the POPF rate is probably the single most important post-operative outcome measurement for distal or lateral pancreatectomy.
- Further evaluation based on larger cohorts is already planned to ratify the results of this preliminary evaluation, but this data can recommend that the AEON™ stapler with the Orange cartridge (Open Height 3.25 mm, Closed Height 1.5 mm) has a positive role to play in transection of the pancreas with a comparable if not improved fistula rate.