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CLINICAL SUMMARY

Preventive Role of Biodegradable Pancreatobiliary Stents

An independent narrative review, evidence-graded across three endoscopic indications

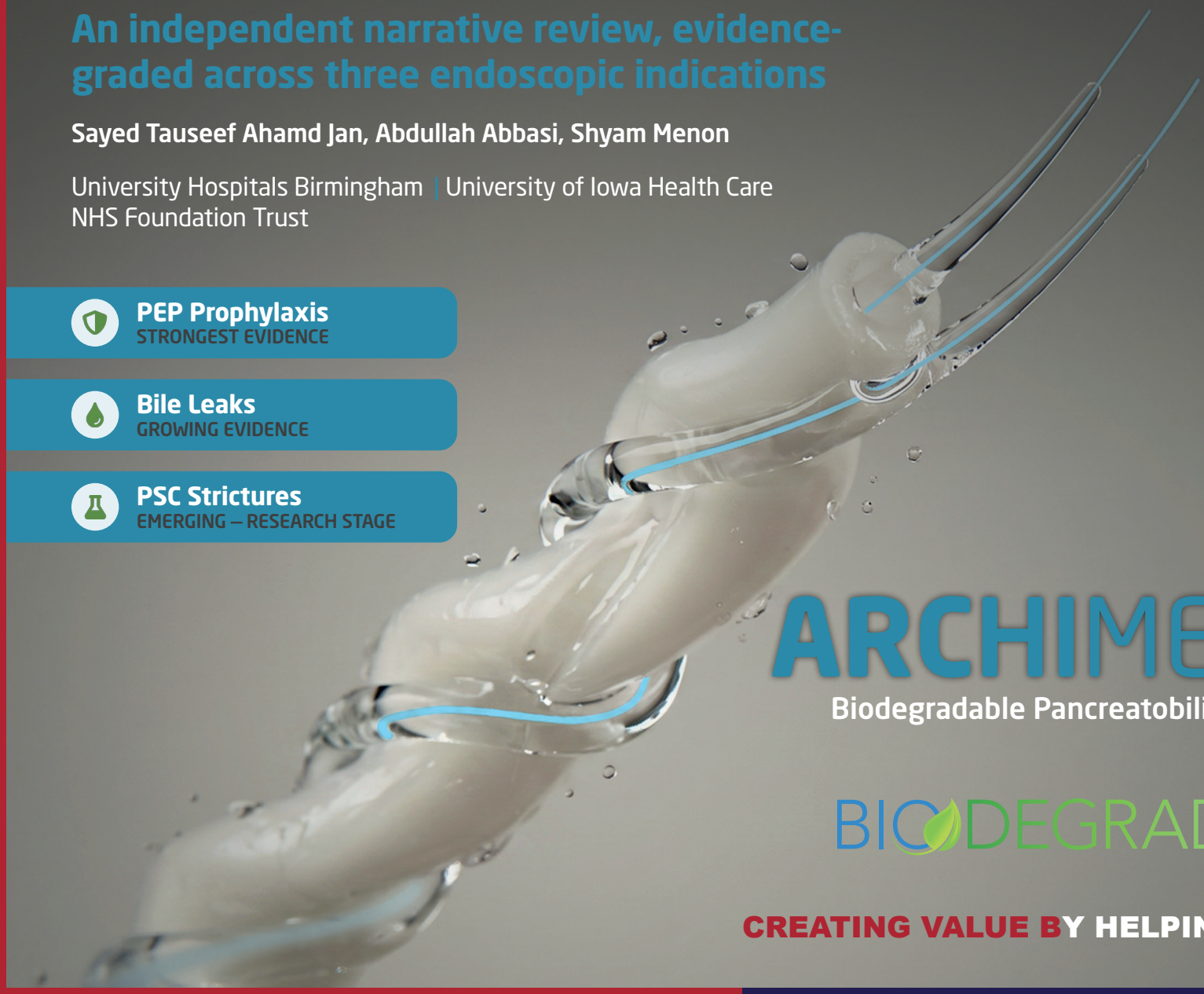
Sayed Tauseef Ahamd Jan, Abdullah Abbasi, Shyam Menon

University Hospitals Birmingham | University of Iowa Health Care
NHS Foundation Trust

PEP Prophylaxis
STRONGEST EVIDENCE

Bile Leaks
GROWING EVIDENCE

PSC Strictures
EMERGING – RESEARCH STAGE



ARCHIMEDES
Biodegradable Pancreatobiliary Stent

BIODEGRADABLE

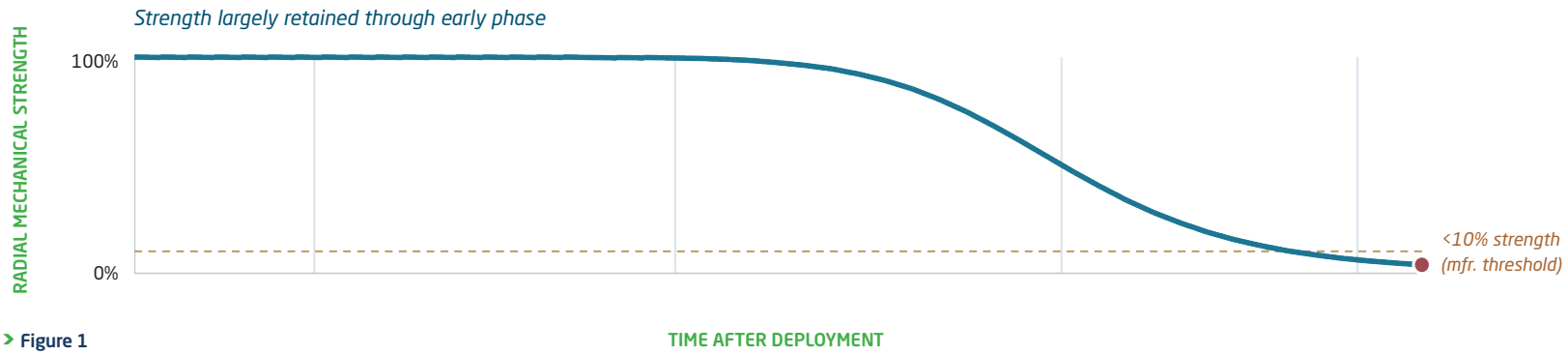
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How ARCHIMEDES Degrades: Hydrolysis

Jan STA, Abbasi A, Menon S. "Preventive role of biodegradable pancreatobiliary stents." World J Gastroenterol, 2026 – Figure 1



› Figure 1

› 1 Intact Stent



Full ductal support; bile/pancreatic flow maintained on outer plus through central lumen (dual drainage).

› 2 Surface Hydrolysis



Water attacks polymer chains; strength still preserved, gradual degradation from outside to in.

› 3 Molecule Separation†



Rapid strength loss as the stent reaches bulk degradation where molecular structure breaks.

› 4 Nothing left behind / Passage



Final molecules completely degrade or pass spontaneously.

› **Figure 1** Degradation of a biodegradable pancreatobiliary stent by hydrolysis. Mechanical strength is largely retained through the early phase and falls rapidly in the later phase, when the device fragments and the fragments pass spontaneously without endoscopic retrieval. Degradation timelines are polymer-dependent (e.g. polydioxanone: fast ≈2 weeks, medium ≈4 weeks, slow ≈3 months;

† The source figure labels this step "Fragmentation." We show it here as "Molecule Separation" – the underlying process, and the terminology used to describe it, may differ across other biodegradable stent platforms.

Source: Jan STA, Abbasi A, Menon S. Preventive role of biodegradable pancreatobiliary stents. World J Gastroenterol, 2026 (Figure 1 and Table 1) – redrawn in Q3 style from the published figure; schematic, not digitized source data.

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PEP Prophylaxis

Effective Post ERCP Pancreatitits Prevention – No follow up required

High Technical Success

One procedure, not two.

Cost Savings Across Multiple Healthcare Settings

AUD$393/pt · ICER ≈$12,454/QALY

Hospital Efficiency Gains

97-100% avoided follow-up imaging or repeat endoscopy for removal.

Sustainability Impact

Where cost falls, waste/$CO2_e$ follows – an estimated ≥18kg $CO2_e$ avoided per patient.

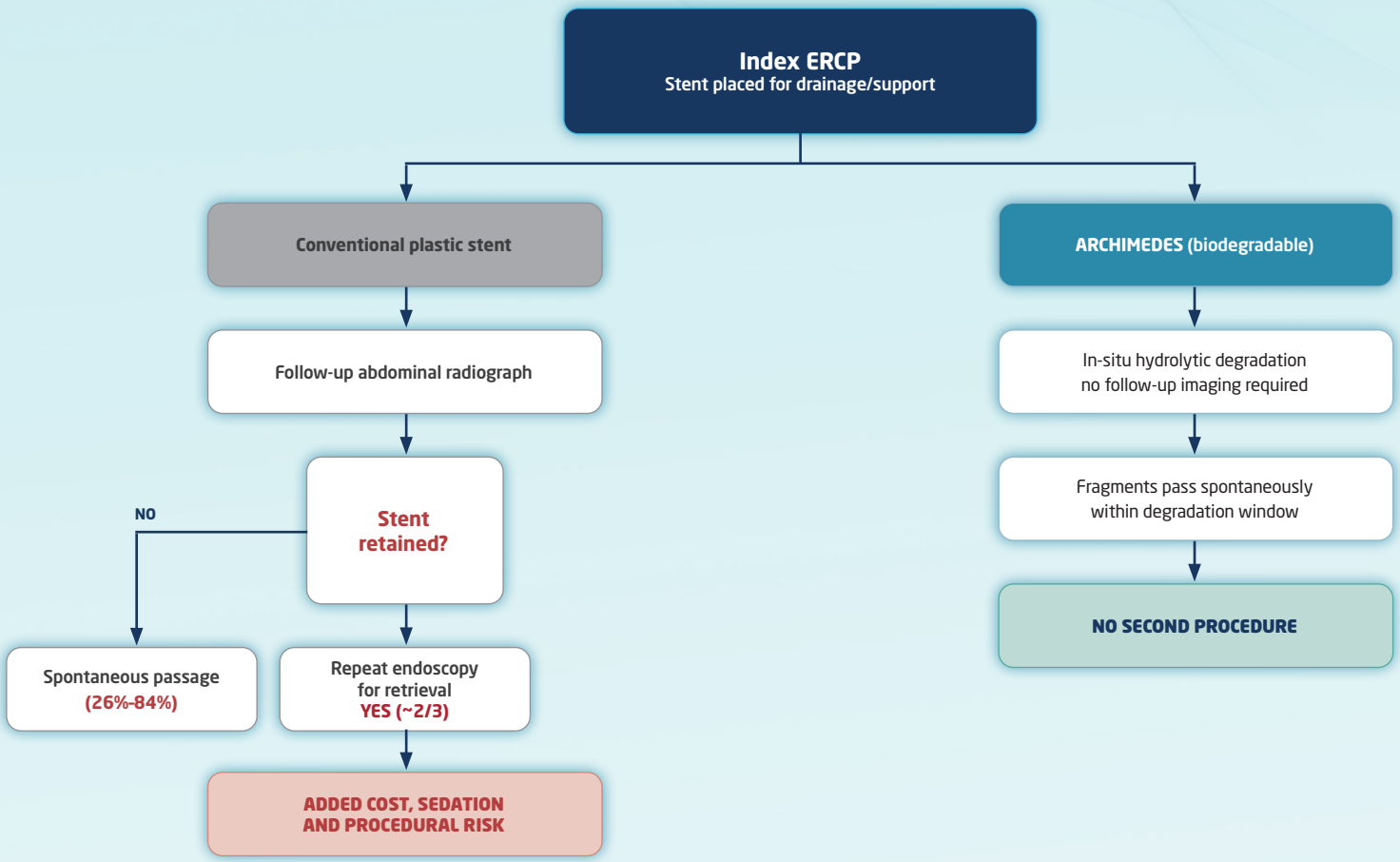
Sources: Jan STA, Abbasi A, Menon S. World J Gastroenterol, 2026 – technical/clinical success, cost, and hospital-efficiency figures are all drawn from the review's own citations (Pérez-Cuadrado Robles et al., ref 15; Maieron et al., ref 16; McGarrigle et al., ref 14; Abbasi et al.). Sustainability-link figure: Schneider et al. 2024 (Endoscopy 56:MP197) – Q3 evidence library, not part of this review.

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The Pathway ARCHIMEDES Removes

The publications' own decision pathway (Figure 2)



› **RETRIEVAL ELIMINATED – CORE ARCHIMEDES ADVANTAGE.**
ARCHIMEDES removes the obligatory retrieval step and its imaging, cost, and procedural risk.

Redrawn in Q3 Medical Group style from Jan STA, Abbasi A, Menon S. World J Gastroenterol, 2026 (Fig. 2) – structure and figures preserved from the published diagram. Passage-rate range per the review's own citations (Gromski et al.; McGarrigle et al., ref 14).

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Bile Leaks

Effective to prevent bile leaks intraoperatively, and to treat them endoscopically — no removal required

Preventing Bile Leaks Intraoperatively

0 leaks · 0 complications

González-Abós et al.: 0% vs 10% biliary fistula in 40 high-risk biliary anastomosis.

Mohanka et al.: zero bile leaks, bilomas, or stent-related complications across 20 liver-transplant recipients.

Wu et al.: 0 complications, post-choledochotomy case series.

Eliminating Removal Provides Cost Savings & Quality Of Life

17-fold QoL improvement

Venkatachalapathy et al. — multicentre UK/Ireland cohort across bridge to surgery and post surgical bile leak indications:

17-fold quality-of-life improvement.

Cost savings from eliminating repeat ERCP for stent removal.$1,519-$3,180.

Seen Across Independent Real-World Series (Not in Publication)

2 centres · 13 more patients

Ahmad et al. 2022 (n=9 ARCHIMEDES bile-leak stents with 100% resolution and no return for endoscopic removal.

Dwarampudi et al. 2025, Frontline Gastroenterol (King's): n=4 of with 100% success and no endoscopic removal.

Standard of Care Today

Conventional — Plastic Stent

Placed endoscopically to control the leak. Once it has healed, the stent must be retrieved — a dedicated second ERCP or endoscopy, with its own sedation, cost and procedural risk, usually confirmed by follow-up imaging.

ARCHIMEDES Biodegradable Stent

Placed once and left to degrade over clinically relevant timeline. No scheduled retrieval procedure, no second sedation, no confirmatory imaging purely to check the stent is gone — stent and forget.

Source: Jan STA, Abbasi A, Menon S. Preventive role of biodegradable pancreatobiliary stents. World J Gastroenterol, 2026.

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PSC-Related Strictures

Small evidence is a case series – a dedicated trial is now recruiting

100%

Technical success

Lindström et al.

7-patient case series via double-balloon enteroscopy, 4 with PSC in surgically altered (Roux-en-Y) anatomy. Stricture resolution in all 3 anastomotic cases. 2 of the 4 PSC patients had recurrent cholangitis during follow-up but this was not stent related.

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Patients Recruiting

BSTPSC Pilot Trial – King's College Hospital - 2026

NCT07607353, PI: Dr Deepak Joshi. Single-centre, open-label pilot in high-grade PSC dominant strictures. Primary endpoint: technical success & safety of ARCHIMEDES at ERC.

STANDARD OF CARE & WHY EVIDENCE STAYS CAUTIOUS

In PSC specifically, conventional plastic stenting was shown to have equivalent stricture recurrence free rates as balloon dilation but was associated with significantly more adverse events than balloon dilation such as PEP and Cholangitis (Ponsioen et al., multicentre RCT, 2018). potentially due to stenting through the ampulla.

Source: Jan STA, Abbasi A, Menon S. Preventive role of biodegradable pancreatobiliary stents. World J Gastroenterol, 2026. All data points confirmed ARCHIMEDES.

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Placing ARCHIMEDES: Just Like a Plastic Stent

Same guidewire, same accessory channel, same over-the-wire technique – deployed like any standard biliary/pancreatic stent



PROCEDURAL ILLUSTRATION – NOT CLINICAL DATA

- Delivered over the same guidewire, through the same accessory channel as a standard plastic stent
- No additional training, sizing system, or capital equipment required
- No extra steps added to procedure time at placement
- Retrieval step removed later in the pathway by design – see the pathway comparison earlier in this deck

› ARCHIMEDES biodegradable stent – deployment during ERCP

Illustrative procedural footage, Q3 Medical Group – included for technique reference only; not a data point from the cited review.

Source: Q3 Medical Group procedural video library. Clinical outcome data throughout this deck is drawn exclusively from Jan STA, Abbasi A, Menon S. World J Gastroenterol, 2026, and named Q3 evidence-library sources.

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World Journal of Gastroenterology

Preventive role of biodegradable pancreatobiliary stents

Sayed Tauseef Ahamd Jan, Abdullah Abbasi, Shyam Menon

LINK TO FULL PUBLICATION HERE



ARCHIMEDES

Biodegradable Pancreatobiliary Stent

LINK TO ARCHIMEDES BROCHURE HERE

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