Welcome

Nalini M. Guda, MD, FACG

Mahesh K. Goenka MD, FACG

Participating in the Webinar

All attendees will be muted and will remain in Listen Only Mode.

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.
Endoscopic Management for Chronic Pancreatitis

D Nageshwar Reddy  MD, DM, D.Sc, FAMS, FRCP, FACG, MWGO

Asian Institute of Gastroenterology

Hyderabad, India.
Chronic Pancreatitis: Stones & Strictures

Intervention: Indication - Pain

Rx
Medical – Endoscopic – Surgical

Schematic representation of the conceptual framework of pain mechanisms in chronic pancreatitis.

Talukdar R et al. World J Gastroenterol 2013
Pancreatic Stone Extraction

[Images of medical procedures and extracted pancreas stones]

[Image of surgical procedure and removed stones]
For treating patients with uncomplicated painful chronic pancreatitis and radiopaque stones ≥5mm obstructing the MPD, the ESGE recommends ESWL as a first step, immediately followed by endoscopic extraction of stone fragments.

Evidence level 1+ Recommendation grade B

Endoscopy 2019
Factors influencing Success Rate

Patient Factors
- Stone Size & Density
- Presence of Stricture
- Duration of Disease
- Use of Narcotics

Technical Factors
- Operator Experience
- Type of Lithotriptor
- Epidural Anesthesia
- Use of Secretin

Epidural anesthesia is effective for extracorporeal shock wave lithotripsy of pancreatic and biliary calculi
Santosh Darisetty, Manu Tandan, Duvvuru Nageshwar Reddy, Rama Kotla, Rajesh Gupta, Mohan Ramchandani, Sandeep Lakhtakia, Guduru Venkat Rao, Rupa Banerjee

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Obtained after a median of 1 session with the high power, X-ray focused machines

 Courtesy: Prof. Jacques Devière

Fragmenting Pancreatic Stones

Pre ESWL  Post ESWL
Fragmenting Pancreatic Stones

Results

- Complete Clearance: 3722 (72.6%)
- Partial Clearance: 886 (17.3%)
- Unsuccessful: 516 (10.01%)

ESWL for large pancreatic calculi: Report of over 5000 patients


Asian Institute of Gastroenterology, Hyderabad, India

Pancreatology 2019
Success of extracorporeal shock wave lithotripsy and ERCP in symptomatic pancreatic duct stones: a systematic review and meta-analysis

Authors
Nadine C.M. van Huijgevoort*1, Joyce V. Veld*1, Paul Fockens1, Marc G. Besselink2, Marja A. Boermeester2, Marianna Arvanitakis3, Jeanin E. van Hooft1

**Figure 1**
- **Meta-analysis**
- **Pooled proportion of patients being completely pain free after ESWL 64.2%**
- **Pooled proportion of stone fragmentation 86.4%**

**Figure 2**
- **Endoscopy 2020**

Endoscopic Therapy Is Effective for Patients With Chronic Pancreatitis

BRIDGER CLARKE,* ADAM SLIVKA,* YUTAKA TOMIZAWA,* MICHAEL SANDERS,* GEORGIOS I. PAPACHRISTOU,†‡ DAVID C. WHITCOMB,*‡ and DHIRAJ YADAV*

*Department of Medicine, and †Department of Human Genetics, University of Pittsburgh; and ‡Veterans Administration Hospital, Pittsburgh, Pennsylvania

**Table 1**
- **Endotherapy effective**
  - Head stones
  - Disease duration < 5 years
  - Intermittent pain
  - No narcotic use
  - Non smokers / non alcoholics

**Response to ET**

<table>
<thead>
<tr>
<th></th>
<th>No response to ET</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis, y</td>
<td></td>
<td>.10</td>
</tr>
<tr>
<td>Constant pain, n (%)</td>
<td></td>
<td>.031</td>
</tr>
<tr>
<td>Daily narcotics, n (%)</td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>Duration of disease, mo</td>
<td></td>
<td>.017</td>
</tr>
</tbody>
</table>
Endotherapy for Chronic Pancreatitis
Long term Clinical Outcomes

56 patients with constant (N=25) or relapsing (N=31) pain treated between 1987 and 1989 and followed for 14.4 years

Annual rate of hospitalization for pain/ stent exchange

Delhaye et al Clin Gastroenterol Hepatol 2004

Hyderabad, India

Intermediate follow up Long term follow up

<table>
<thead>
<tr>
<th></th>
<th>2 – 5 years</th>
<th>5 – 8 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>364</td>
<td>272</td>
</tr>
<tr>
<td>Complete pain relief</td>
<td>68.7%</td>
<td>60.3%</td>
</tr>
<tr>
<td>Mild to moderate pain</td>
<td>25.8%</td>
<td>35.3%</td>
</tr>
<tr>
<td>Severe pain</td>
<td>5.5%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Reintervention</td>
<td>28.8%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Stone recurrence</td>
<td>14.1%</td>
<td>22.8%</td>
</tr>
</tbody>
</table>

Tandan M et al Gastrointest Endosc 2013
Pancreatic Stone Management Problems With ESWL

- Not broadly available
- Dependent on others (urology)
- Reimbursement issues

Comparison of Urologist- vs Gastroenterologist-Directed Extracorporeal Shock Wave Lithotripsy for Pancreaticolithiasis

Clin Gastroenterol Hepatol. 2021

> Improved Duct clearance

Intraductal Lithotripsy

Mansour A et al Gastroenterology 2013
Intraductal Lithotripsy with Laser

Pancreatic Stone Management Problems With ESWL

↑ Availability
One session
No dependency

Pancreateoscopy
EHL / LL

23

24
Stone Management: Intraductal lithotripsy

Peroral Pancreatography (POP) Guided lithotripsy

- 1999-2020 cases published: 16 studies 383 cases
- Technical / clinical success rate: 37.5%-100%, 76%
- Adverse Event rate: 0%-30%, 7%
- No difference LL or EHL
- Very heterogenous, mostly retrospective data, mixed population and devices, mostly short FU for clinical success.

Syed M Saghir et al World J Gastroenterol 2020

A comparative study between single-operator pancreateoscopy with intraductal lithotripsy and extracorporeal shock wave lithotripsy for the management of large main pancreatic duct stones

Benjamin L. Bick1, Feenalie Patel2, Jeffrey J. Easler3, Yan Tong3, James L. Watkins1, Lee McHenry1, Glen Lehman1, Evan L. Fogel1, Mark A. Gromski1, Stuart Sherman1

Surgical Endoscopy 2021

<table>
<thead>
<tr>
<th></th>
<th>ESWL N:240</th>
<th>SOPIL N:18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone clearance</td>
<td>86%</td>
<td>88%</td>
</tr>
<tr>
<td>Adverse events</td>
<td>6.3%</td>
<td>5.6%</td>
</tr>
<tr>
<td>No of procedures</td>
<td>3.1</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Pancreatic Strictures

Cremer Pancreatic Stent

Multiple Pancreatic Stents

Single proximal stricture
Multiple stents
Stenting >1year

Courtesy: Prof. Guido Costamagna
CSEMS for Pancreatic Stricture (Bumpy Stent)

- 32 patients – 3 months – 100% resolution

Sung-Hoon Moon et al Gastrointest Endosc 2010

EUS Therapy in Pancreatic Pain

- Celiac ganglion
- PPFC drainage
- Pancreatic ductal drainage
- Rendezvous technique
Fully Covered Self-Expanding Metal Stent vs Multiple Plastic Stents to Treat Benign Biliary Strictures Secondary to Chronic Pancreatitis: A Multicenter Randomized Trial


RCT of MPS versus FCSEMS to treat benign biliary strictures in chronic pancreatitis

Endotherapy

- Stricture < 3 cm
- Absence of head mass

Randomization

84 to multiple plastic stents

80 to fully covered self-expanding metal stent

Gastroenterology 2021

Treatment of Chronic Pancreatitis
Endotherapy vs Surgery

Yes

May be

No

Endoscopic vs. Surgical Interventions for Painful Chronic Pancreatitis: What is Needed for Future Clinical Trials

John A. Winther, MD and Nageshwar D. Reddy, MD

American College of Gastroenterology
Management of Chronic Pancreatitis

Step up Approach

Chronic Pancreatitis
Stop Smoking alcohol
Analgesics
Neuromodulators
Pancreatic enzymes
Antioxidants

Individualized Approach

No Response
No Response

Long-term pain relief with optimized medical including antioxidants and step-up interventional therapy in patients with chronic pancreatitis.

Shilmar S, Midha S, Hasan A, Dhinra R, Garg PK

J Gastroenterol Hepatol 2016
CONCLUSIONS: In the long term, symptomatic patients with advanced chronic pancreatitis who underwent surgery as the initial treatment for pancreatic duct obstruction had more relief from pain, with fewer procedures, than patients who were treated endoscopically. Importantly, almost half of the patients who were treated with endoscopy eventually underwent surgery.
Problems with studies for endotherapy of chronic pancreatitis

- Quality and limitations of the studies
- Heterogeneity of patient population

What do we need

- Adequate tools to assess pain
- Sham controlled studies
- Prior drug therapy
- Confounders – alcohol, smoking
- Timing of intervention
- Long term outcome studies
Chronic Pancreatitis

- Dilated Ducts
  - ESWL
  - Endotherapy
  - Surgery
- Non Dilated Ducts
- Complications
  - Medical therapy
  - Cx Ganglion Block

Team Work
- Physicians
- Surgeon
- Endoscopist
- Intraventional Radiologist

Reddy DN et al, Clin Gastroenterol Hepatol 2012

Team AIG
Questions?

Dr. Reddy

Dr. Guda

Dr. Goenka