Appendix e1. Quick reference guide

1. Initial work-up and choice of treatment

The ESGE recommends performing computed tomography (CT) scanning to plan treatment of chronic pancreatitis (Recommendation C). A combination of other imaging modalities (e.g., magnetic resonance with cholangiopancreatography [MRCP] or endoscopic ultrasonography [EUS] plus CT scanning or abdominal X-ray) may be preferable in specific circumstances (e.g., suspected anatomical variants of the pancreatic ducts, common bile duct [CBD] strictures, or drainage of post-necrotic pancreatic fluid collections) (Evidence level B).

In patients with a pancreatic mass or a stricture of the main pancreatic duct (MPD) or CBD in the context of chronic pancreatitis, an adequate work-up should be performed to reasonably rule out a pancreatic cancer (Recommendation grade A).

The ESGE recommends endoscopic therapy as the first-line therapy for painful uncomplicated chronic pancreatitis. The clinical response should be evaluated at 6–8 weeks; if it appears unsatisfactory, the patient’s case should be discussed again in a multidisciplinary team with endoscopists, surgeons, and radiologists and surgical options should be considered, in particular in patients with a predicted poor outcome following endoscopic therapy (Recommendation grade B).

2. Management of pancreatic stones

For treating patients with uncomplicated painful chronic pancreatitis and radiopaque stones ≥5 mm obstructing the main pancreatic duct (MPD), the ESGE recommends extracorporeal shockwave lithotripsy (ESWL) as a first step, immediately followed by endoscopic extraction of stone fragments. In centers with considerable experience with ESWL, ESWL alone should be preferred over ESWL systematically combined with endoscopic retrograde cholangiopancreatography (ERCP) (Recommendation grade B). Endoscopic attempts to extract radiopaque MPD stones without prior stone fragmentation should be considered only for stones 5 mm, preferably in number, and located in the head or body of the pancreas. Intraductal lithotripsy should be attempted only after failure of ESWL (Recommendation grade D).

3. Management of main pancreatic duct (MPD) strictures

3.1. Plastic stents

The ESGE recommends treating dominant strictures of the MPD by inserting a single 10-Fr plastic stent, with stent exchange planned within 1 year even in asymptomatic patients to prevent complications related to long-standing pancreatic stent occlusion (Recommendation grade C). Simultaneous placement of multiple, side-by-side, pancreatic stents could be applied more extensively, particularly in patients with MPD strictures persisting after 12 months of single plastic stenting. At this time point, the ESGE recommends that available options (e.g., endoscopic placement of multiple simultaneous pancreatic stents, surgery) be discussed in a multidisciplinary team (Recommendation grade D).

3.2. Self-expandable metal stents (SEMSs)

Uncovered SEMSs should not be inserted in MPD strictures (Recommendation grade D); temporary placement of fully covered SEMSs holds promise but it should be performed only in the setting of trials with approval of the institutional review board (Recommendation grade C).

3.3. Endosonography-guided access and drainage (ESGAD) of the MPD

ESGAD of the MPD is indicated in carefully selected patients; patients considered for endonosonographically guided access and drainage should be referred to tertiary centers with appropriate equipment and expertise (Recommendation grade D).

4. Endoscopic ultrasound-guided celiac plexus block

The ESGE recommends considering celiac plexus block (CPB) only as a second-line treatment for pain in chronic pancreatitis; EUS-guided CPB should be preferred over percutaneous CPB (Recommendation grade C).

5. Pancreatic pseudocysts

5.1. Indications for treatment

The ESGE recommends endoscopic therapy as the first-line therapy for uncomplicated chronic pancreatic pseudocysts (PPCs) for which treatment is indicated and that are within endoscopic reach (Recommendation grade A).

5.2. Methods

If transmural pseudocyst drainage is indicated in the absence of luminal bulging, it should be performed under endoscopic ultrasound (EUS) guidance (Recommendation grade A). For small collections communicating with the main pancreatic duct (MPD) in the head or body of the pancreas, the ESGE recommends attempting transpapillary drainage first. Cystoduodenostomy should be preferred over cystogastrostomy if both routes are deemed equally feasible. For transmural pseudocyst drainage, the ESGE recommends inserting at least two double-pigtail plastic stents (Recommendation grade D); these should not be retrieved before cyst resolution as determined by cross-sectional imaging and not before at least 2 months of stenting (Recommendation grade B). In the case of portal hypertension, transmural drainage should be performed under EUS guidance. If arterial pseudoaneurysms are detected in the vicinity of the pseudocyst, arterial embolization should be considered prior to pseudocyst drainage (Recommendation grade D).

5.3. Particular case: complete MPD rupture

The ESGE recommends, besides transmural pseudocyst drainage, attempting transpapillary bridging of MPD ruptures with a plastic stent. If the MPD rupture cannot be bridged, transmural stents should be left in place for as long as the disconnected pancreatic tail secretes pancreatic juice (typically, for years) (Recommendation grade D).
5.4. Complications

The ESGE recommends antibiotic prophylaxis for endoscopic pseudocyst drainage (Recommendation grade D).

6. Chronic pancreatitis-related biliary strictures

6.1. Indications for treatment

The ESGE recommends treating chronic pancreatitis-related biliary strictures in the case of symptoms, secondary biliary cirrhosis, biliary stones, progression of biliary stricture, and asymptomatic elevation of serum alkaline phosphatase (2 or 3 times the upper limit of normal values) and/or of serum bilirubin for longer than 1 month (Recommendation grade A).

6.2. Methods

The choice between endoscopic and surgical treatment should rely on local expertise, local or systemic patient co-morbidities (e.g., portal cavernoma, cirrhosis) and expected patient compliance with repeat endoscopic procedures (Recommendation grade D). If endoscopic therapy is elected, the ESGE recommends temporary (1-year) placement of multiple, side-by-side, plastic biliary stents (Recommendation grade A). Because of the risk of fatal septic complications, a recall system should be set up to care for patients who do not present for scheduled stent exchanges. In cases of relapsing stricture after stent removal at 1 year, the options available, including surgical biliary drainage, should be evaluated by a multidisciplinary team (Recommendation grade D).

7. Treatment of chronic pancreatitis in children

The ESGE recommends endoscopic therapy as a first-line therapy for chronic pancreatitis in children starting at 8 years in the same conditions as in adults (Recommendation grade C).

Appendix e2   Chapter structure, task forces and key questions.

<table>
<thead>
<tr>
<th>Chapter/topic complex</th>
<th>Task forces (spokespersons in bold)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task force I Introduction</td>
<td></td>
</tr>
<tr>
<td>1. What pain mechanism is targeted by the endoscopic treatment?</td>
<td>Dominguez-Munoz Arvanitakis Deviere</td>
</tr>
<tr>
<td>2. What is the percentage of patients referred for endoscopic therapy who need pancreatic ductal stricture dilation, stone elimination, pseudocyst drainage, or biliary ductal stricture dilation (or a combination of these treatments)?</td>
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<tr>
<td>3. What investigations should be performed in order to differentiate mass-forming chronic pancreatitis vs. ductal adenocarcinoma, chronic pancreatitis vs. focal autoimmune pancreatitis, and main-duct intraductal papillary mucinous neoplasm (IPMN) vs. chronic pancreatitis?</td>
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<tr>
<td>4. Which investigations should be performed to guide endotherapy before the management of:</td>
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<tr>
<td>– pancreatic stone</td>
<td>Poley Sandeep, Reddy</td>
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<tr>
<td>– pancreatic stricture</td>
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<td>– pseudocyst</td>
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<tr>
<td>– biliary stricture</td>
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<tr>
<td>Task force II Pancreatic stone management</td>
<td></td>
</tr>
<tr>
<td>1. Introduction</td>
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<tr>
<td>1. Define types of stones, principles of stone treatment (success of Dormia alone, etc.), and successful technical outcome of stone treatment.</td>
<td></td>
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<tr>
<td>2. Extracorporeal shockwave lithotripsy (ESWL)</td>
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<tr>
<td>1. What are the indications for ESWL and should some stones be preferably selected for treatment (stone size and location)?</td>
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<tr>
<td>2. What are potential indications for treatment by ESWL alone?</td>
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<td>3. What is the efficacy and cost – efficiency of using ESWL alone vs. ESWL combined with endoscopic retrograde cholangiopancreatography (ERCP)?</td>
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<td>4. What is the frequency of pain recurrence after ESWL alone or combined?</td>
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<td>5. What are post-ESWL complications?</td>
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<tr>
<td>3. Intraductal lithotripsy</td>
<td></td>
</tr>
<tr>
<td>1. What are the indications for intraductal lithotripsy?</td>
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<tr>
<td>2. What is the feasibility of intraductal lithotripsy in pancreatic stones vs. biliary stones?</td>
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<tr>
<td>3. What are the complications of intraductal lithotripsy?</td>
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<tr>
<td>4. What is the evidence of improving patient outcome?</td>
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<tr>
<td>4. Stone dissolution</td>
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<tr>
<td>1. What are the current alternatives?</td>
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<tr>
<td>2. Should this method be used, alone or in combination with other procedures (e.g. ESWL)?</td>
<td></td>
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</tbody>
</table>
### Task force III Pancreatic stricture management

1. **Introduction**
   - Define types of strictures, principles of stenting including the performance of a pancreatic and/or biliary sphincterotomy and successful technical outcome of endoscopic stricture treatment.

2. **Plastic stents**
   - How does their use compare with balloon dilation?
   - What is the most appropriate stent design, length, and diameter?
   - What is the most appropriate stent exchange schedule?
   - What are the criteria for not replacing a stent after removal?
   - What are the frequency and main causes of symptom relapse?
   - What is the indication for single vs. multiple plastic stenting?
   - What is the long-term outcome in patients after “definitive” stent removal?
   - What are the complications of this procedure?

3. **Self-expandable metallic stents (SEMSs)**
   - What are the potential advantages of SEMS?
   - What types of SEMS can be used?
   - What is the long-term outcome of patients with SEMS?
   - What are the complications of use of SEMSs?

4. **Endosonography-guided access and drainage (ESGAD) of the main pancreatic duct (MPD)**
   - What are the indications for ESGAD?
   - Briefly describe current techniques
   - What is the drainage efficacy of the method: single vs. multiple stenting?
   - What is the long-term outcome of patients after ESGAD?
   - What are ESGAD complications?

### Task force IV Pseudocyst and biliary stricture management

1. **Pseudocysts**
   - Define types of pseudocyst, principles of treatment, and successful technical outcome of endoscopic pseudocyst treatment.
   - What are the indications and best timing (relative to an episode of acute or chronic pancreatitis) for pseudocyst drainage?
   - How to choose amongst the endoscopic approaches depending on the type of pseudocyst and associated lesions (e.g., ductal leakage, portal hypertension, arterial pseudoaneurysm)?
   - In case of MPD rupture, should the strategy be different?
   - Which stenting strategy shows the best outcome for transmural drainage: type, number of stents, and stenting duration?
   - Is antibiotic prophylaxis needed before endoscopic therapy?
   - How do transmural and transpapillary pancreatic pseudocyst (PPC) drainage compare?
   - What are the complications of pseudocyst drainage?
   - How does endoscopic therapy compare with surgery for pseudocyst?

2. **Biliary strictures**
   - Define types of biliary stricture, principles of treatment, and successful technical outcome of endoscopic biliary stricture treatment.
   - What are the indications for treating biliary stricture?
   - What are the potential endoscopic approaches (single, multiple plastic stents, various types of SEMS)?
   - How do short- and long-term success compare for single plastic stenting, multiple plastic stenting, uncovered, partially and fully covered SEMS?
   - How should plastic stent exchange be scheduled (timing, recall system)?
   - What factors (e.g., stenting duration, calcifications) are related to the best long-term results?
   - How do multiple plastic stenting and covered SEMS compare in terms of biliary patency, cost, complications, etc?
   - What are the complications of endoscopic treatment?
   - How does endoscopic treatment compare with surgery for biliary stricture?
   - Which criteria help to select endoscopic treatment vs. surgical therapy?
1. **Outcome**
   1. What are potential predictors of a poor long-term result of endoscopic treatment (e.g., Izbicki pain score)?
   2. What are potential predictors of procedure complications (e.g., poor patient condition, procedure complexity)?
   3. How does endoscopic treatment compare with other managements?
   4. For which patients do we recommend endoscopic treatment?
   5. When and in what detail should patients be informed about the use of endoscopic treatment and alternatives?
   6. Which categories of care providers may safely provide endoscopic therapy in chronic pancreatitis?
   7. How difficult is endoscopic therapy for chronic pancreatitis, what is the nature of the learning curve and training for endoscopic treatment for chronic pancreatitis?
   8. Which hospital settings are adequate for endoscopic treatment in chronic pancreatitis?
   9. Can endoscopic treatment be performed on an ambulatory basis?
   10. How should patients be followed immediately after and at long-term post endoscopic treatment?
   11. What is the impact of endoscopic treatment on the quality of life of chronic pancreatitis patients?
   12. What is the impact of endoscopic treatment on the endocrine/exocrine pancreatic functions?
   13. At long-term follow-up after endoscopic treatment, what are the proportions of patients with ongoing endotherapy, of patients requiring surgery, and of patients totally free of any treatment?

2. **Endoscopic treatment in pediatric chronic pancreatitis**
   1. What are the incidence and the etiologies of chronic pancreatitis in pediatric populations?
   2. What are the endoscopic treatment indications?
   3. What are the endoscopic treatment results?
   4. What are the endoscopic treatment complications?

3. **Endosonography-guided celiac block (ESGCB)**
   1. What are the pharmaceutical agents used for celiac block?
   2. What are the long-term results?
   3. What are the clinical advantages of ESGCB?
   4. What are the complications?

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### Appendix e3 Evidence table.

<table>
<thead>
<tr>
<th>Topic complex</th>
<th>Number of initial references according to the predefined key questions/keywords</th>
<th>Number of relevant references for the guideline after evaluation</th>
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<td>Task force V</td>
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