



PRACTICE

GUIDELINES

Pancreatitis: summary of NICE guidance

Eleanor Samarasekera *senior research fellow*¹, Shama Mahammed *health economist*¹, Sophie Carlisle *senior research fellow*¹, Richard Charnley *consultant hepatobiliary and pancreatic surgeon, guideline chair*², on behalf of the Guideline Committee

¹National Guideline Centre, Royal College of Physicians, London NW1 4LE, UK; ²Department of Hepato-Pancreato-Biliary Surgery, Freeman Hospital, Newcastle Upon Tyne NE7 7DN, UK

What you need to know

- Do not make people with acute pancreatitis "nil by mouth" and do not withhold food without clear reason
- Consider chronic pancreatitis as a potential diagnosis in patients with recurrent or chronic abdominal pain
- The long term use of opioids for pain management in chronic pancreatitis may cause harm; seek advice from specialist pain teams when managing uncontrolled pain in people with chronic pancreatitis
- Type 3c diabetes is diabetes secondary to pancreatic disease, such as inflammation, and usually requires management in secondary care with ongoing support in the community
- Offer HbA1c testing at least every 6 months and bone mineral density assessments every 2 years to people with chronic pancreatitis

Pancreatitis can severely reduce quality of life and may reduce life expectancy.^{1,2} Acute and chronic pancreatitis are characterised by inflammation of the pancreas, and [table 1](#) outlines their features. Acute pancreatitis can recur if the cause is not identified and addressed. Over time, such patients may develop chronic pancreatitis. In its early stages this is characterised by acute exacerbations but also chronic pain, along with exocrine insufficiency, associated with fat malabsorption and malnutrition. Diabetes is also common. As chronic pancreatitis progresses, patients tend to experience fewer exacerbations but more chronic pain.

Specialists almost always manage acute pancreatitis because it is an acute abdominal emergency requiring hospital admission. However, non-specialists, including those in primary care, may be the first clinicians to identify chronic pancreatitis. Non-specialists may also manage and monitor symptoms including pain, endocrine and exocrine insufficiency, and make appropriate referrals.

Interventions used for management of acute pancreatitis show wide variation.³ Advice on management is often conflicting, and some patients have had difficulty accessing appropriate care. The new national guideline from the National Institute for

Health and Care Excellence (NICE) on pancreatitis aims to reduce this variation with the hope of improving outcomes.⁴ This is a summary of the NICE recommendations: it covers when to consider a diagnosis of chronic pancreatitis, the needs of people with acute and chronic pancreatitis, how to administer nutritional support, when to refer, and how to manage type 3c diabetes. There are other recommendations not covered in this summary.

What's new in this guidance?

- Information and support for patients with pancreatitis and their carers has been identified as being substandard and is emphasised in these guidelines
- Regional pancreatitis networks are to be encouraged
- Specialist nutrition and diabetes management are essential in management of pancreatitis

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the guideline committee's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are given in *italic* in square brackets.

Sharing information and offering support

Reliable information on pancreatitis regarding symptoms, complications, treatment options, lifestyle modifications, and the socioeconomic support required is not consistent or widely available in the UK. People diagnosed with acute and chronic pancreatitis are often left without the specific information and support they need to make choices about their health—such as severity of the illness, recovery time from acute pancreatitis, indications for intervention and other treatment options, and availability of and indications for involvement of specialist

centres.³ Wrong information is often given by misinformed healthcare professionals—patient representatives particularly found this to be the case in relation to nutrition and type 3c diabetes. For example, people are often advised to adopt a fat-free diet, which is not necessary.

Although not reviewed within the NICE guideline, some online resources aimed at patients are available.^{5,6}

- Give people with pancreatitis, and their family members or carers (as appropriate), written and verbal information on the following (where relevant) as soon as possible after diagnosis:
 - Pancreatitis and any proposed investigations and procedures using diagrams
 - Hereditary pancreatitis (see [box 1](#)) and pancreatitis in children, including specific information on genetic counselling, genetic testing, risk to other family members, and advice on the impact of their pancreatitis on life insurance and travel
 - The long term effects of pancreatitis, including effects on the person's quality of life
 - The harm caused to the pancreas by smoking or alcohol. [*Based on the experience and opinion of the Guideline Committee (GC)*]
- Advise people with:
 - Pancreatitis caused by alcohol to stop drinking alcohol
 - Recurrent acute or chronic pancreatitis that is not alcohol related that alcohol might exacerbate their pancreatitis
 - Chronic pancreatitis to stop smoking in line with NICE's guidance on stop smoking interventions and services.⁷ [*Based on the experience and opinion of the GC*]
- Advise people with pancreatitis where they might find reliable, high quality information and support after consultations, from sources such as national and local support groups, regional pancreatitis networks, and information services (see also box on additional educational resources).
- Provide other important information about management of pancreatitis such as:
 - Nutrition advice, including how to take enzyme replacement therapy if needed (see [box 2](#))
 - Who to contact for advice, including during episodes of acute illness
 - Psychological care if needed (see NICE guideline on depression in adults⁸)
 - The role of specialist centres and primary care services for people with acute, chronic, or hereditary pancreatitis
 - Welfare benefits, education, and employment support, and disability services. [*Based on the experience and opinion of the GC*]

Box 1: Sites of common genetic mutations causing pancreatitis

- *PRSS1* (cationic trypsinogen)—Unique to pancreatitis
- *SPINK1* (pancreatic secretory trypsin inhibitor, *PSTI*) mutation—Unique to pancreatitis
- *CFTR* (cystic fibrosis transmembrane-conductance regulator)—Associated with pancreatitis as a result of cystic fibrosis

Box 2: Taking enzyme replacement therapy*

When

- During every meal, snack, or milk-based drink
- With the first mouthful or immediately before eating so that the enzymes will be mixed with the food in the stomach

How

- Take the capsules whole with a cold drink (or open the capsule and sprinkle the granules on soft acidic food if unable to swallow whole)
- Do not crush, chew, or hold in the mouth
- For larger meals or those that take longer than about 30 minutes, take half the dose at the start of the meal and half in the middle

*Advice from The Clatterbridge Cancer Centre. www.clatterbridgecc.nhs.uk/application/files/3914/3504/9642/PancreaticEnzymeReplacementTherapyPERTGuidanceV1.pdf

Acute pancreatitis

Information for patients and carers

- Explain to people with severe acute pancreatitis, and their family members and carers (as appropriate), that
 - A hospital stay lasting several months is common, including time in critical care
 - For people who achieve full recovery, time to recover may take at least three times as long as their hospital stay
 - Local complications of acute pancreatitis may resolve spontaneously or may take weeks to progress before it is clear that intervention is needed
 - It may be safer to delay intervention (for example, to allow a fluid collection to mature)
 - People who have started to recover may have a relapse
 - Although children rarely die from acute pancreatitis, approximately 15-20% of adults with severe acute pancreatitis die in hospital. [*Based on the experience and opinion of the GC*]

How to administer nutrition support

Most people with severe acute pancreatitis require nutritional support. A recent NCEPOD report identified wide variation in the initial nutritional interventions used in acute pancreatitis,⁹ and patients report prolonged periods of starvation. There is no benefit of delayed nutrition in severe or moderately severe acute pancreatitis. The safest first line route of administration is enteral nutrition.

- Ensure that people with acute pancreatitis are not made “nil by mouth” and do not have food withheld unless there is a clear reason for this (such as vomiting). [*Based on the experience and opinion of the GC*]
- Offer enteral nutrition to anyone with severe or moderately severe acute pancreatitis. Start within 72 hours of presentation and aim to meet their nutritional requirements as soon as possible. [*Based on low to moderate quality evidence from randomised trials and the experience and opinion of the GC*]
- Offer anyone with severe or moderately severe acute pancreatitis parenteral nutrition only if enteral nutrition has failed or is contraindicated. [*Based on cost analysis, low to moderate quality evidence from randomised trials, and the experience and opinion of the GC*]

Who to refer from a secondary to tertiary centre

There is a historical lack of appropriate referral to specialist centres for acute pancreatitis. A hub-and-spoke model successfully operates in some hospital trusts.⁹ The following recommendations are intended to standardise and optimise referral:

- If a person develops necrotic, infective, haemorrhagic, or systemic complications of acute pancreatitis
 - Seek advice from a specialist pancreatic centre within the referral network
 - Discuss whether to move the person to the specialist centre for treatment of the complications.

[Based on the experience and opinion of the GC]

- When managing acute pancreatitis in children
 - Seek advice from a paediatric gastroenterology or hepatology unit and a specialist pancreatic centre
 - Discuss whether to move the child to the specialist centre.

[Based on the experience and opinion of the GC]

Figures 1 and 2 demonstrate endoscopic management of infected pancreatic necrosis.

Chronic pancreatitis

When to suspect it

Patient groups say that people often have multiple consultations before a diagnosis of chronic pancreatitis is considered or confirmed. The following recommendation was made to improve awareness.

- Think about chronic pancreatitis as a possible diagnosis for people presenting with chronic or recurrent episodes of upper abdominal pain and refer accordingly. [Based on the experience and opinion of the GC]

Diagnosis

Diagnosis of chronic pancreatitis should be prompted by a history of intermittent upper abdominal pain, loss of weight, and diarrhoea suggesting deficiency in exocrine function. Patients may show signs of malnutrition with low body mass and may develop diabetes due to loss of endocrine function. The diagnosis can usually be confirmed with cross-sectional imaging (computed tomography or magnetic resonance imaging). Initial investigations, to exclude other diagnoses, also include ultrasound or upper gastrointestinal endoscopy. The diagnosis may be strongly suspected in primary care but is likely to be confirmed in secondary care.

How to administer nutrition support

Without appropriate dietetic input, people with chronic pancreatitis can experience pain when eating, weight loss because of lack of pancreatic enzymes, and the development of diabetes. However, some people with chronic pancreatitis are not seen by a dietitian, and there are few dietitians specialising in pancreatitis.

- Be aware that all people with chronic pancreatitis are at high risk of malabsorption, malnutrition, and a deterioration in their quality of life. [Based on the experience and opinion of the GC]
- Use protocols agreed with the specialist pancreatic centre to identify when advice from a specialist dietitian is needed, including advice on food, supplements, and long term pancreatic enzyme replacement therapy, and when to start

these interventions. [Based on the experience and opinion of the GC]

- Consider assessment by a dietitian for anyone diagnosed with chronic pancreatitis. [Based on the experience and opinion of the GC]
- For guidance on nutrition support for people with chronic alcohol related pancreatitis, see alcohol related pancreatitis in the NICE guideline on alcohol-use disorders.¹⁰

Management of pain

Abdominal pain is the predominant symptom for patients. A pragmatic approach is to follow the World Health Organisation pain ladder; opioids need not be first line treatment just because the pain is pancreatic. Opioids are commonly used in treating chronic pancreatitis and acute exacerbations of chronic pancreatitis, but there is emerging evidence that their long term use may cause harm. For people with chronic pancreatitis, use of opioids may change the perception of pain. As a result, people with painful chronic pancreatitis may begin to fear oncoming pain and increase their opiate use. Overprescription of opioids, particularly at high doses, has been linked to excess deaths.¹¹ The Guideline Committee was, however, unable to make a recommendation regarding pain control and opioid use for pancreatitis because there was insufficient evidence. Further research into the treatment of chronic pain in chronic pancreatitis is needed.

Type 3c diabetes

This is diabetes secondary to pancreatic disease, caused by disruption of the architecture or physiology of the pancreas. It can be confused with type 2 diabetes, but its pathology and course differ (see box 3). There is a lack of evidence on how to manage this type of diabetes. It occurs in up to 80% of people with chronic pancreatitis and can also occur after acute pancreatitis.

Box 3: Type 3c diabetes (diabetes of the exocrine pancreas)*

Cause

- A process, such as pancreatic inflammation, neoplasia, or surgical resection, that disrupts the pancreas and the body's ability to produce insulin
- Reduced insulin production due to β cell dysfunction after pancreatic inflammation or total β cell loss
- There is insufficient insulin secretion (the abnormality in type 1 diabetes) rather than insulin resistance (which is characteristic of type 2 diabetes).

Incidence

- Affects 9% of hospitalised patients with diabetes

Disease course

- Commonly misdiagnosed as type 2 diabetes
- Twice as likely to have poor glycaemic control as type 2 diabetes
- After acute pancreatitis 21% of people with diabetes are treated with insulin within 5 years of diagnosis
- With chronic pancreatitis, 46% of those with type 3c diabetes are treated with insulin within 5 years of diagnosis (In comparison, 4% of people with type 2 diabetes are treated with insulin within 5 years)
- Complications include nerve, eye, and kidney damage if diabetes not appropriately treated

* Based on Woodmansey et al.¹²

Type 3c diabetes usually requires management in secondary care with ongoing support in the community. Existing guidance should be followed until new research is conducted.

- Assess people with type 3c diabetes every six months for potential benefit of insulin therapy. [*Based on the experience and opinion of the GC*]
- For guidance on managing type 3c diabetes, follow existing NICE guidelines
 - On type 2 diabetes for people who do not require insulin^{13 14}
 - On type 1 diabetes for people who require insulin.¹⁴⁻¹⁶

How specialists might involve primary care

Many people with pancreatitis will be managed long term in the community, so coordinated care between primary and secondary care is important. Information to be shared with primary care and actions to be taken include:

- Detail on how people should take their pancreatic enzyme replacement therapy (including dose escalation as necessary). [*Based on the experience and opinion of the GC*]

This is critical to support a good quality of life for those who need this treatment (see [box 2](#) for details).

- Offer HbA1c testing to people with chronic pancreatitis at least every six months. [*Based on the experience and opinion of the GC*]

There is a high rate of diabetes secondary to pancreatitis, and this can lack the classic symptoms. Testing is likely to be organised and monitored by a specialist centre but delivered by non-specialist secondary care centres or general practices.

- Offer people with chronic pancreatitis bone mineral density assessment every two years. [*Based on the experience and opinion of the GC*]

There is an increased fracture risk and reduced bone density in chronic pancreatitis.

Implementation

Successful implementation of these recommendations will require a model to be established across the country in which local centres interact and collaborate with a regional specialist centre for acute pancreatitis to allow appropriate referrals. This will include the establishment of networks of specialist and non-specialist dietitians to standardise nutritional care in pancreatitis. This is in line with recommendation 14 of the NCEPOD report on acute pancreatitis.⁹

Future research

The Guideline Committee prioritised the following research recommendations in the areas covered by this summary:

- In people with suspected (or under investigation for) chronic pancreatitis, whose diagnosis has not been confirmed by the use of first line tests (computed tomography, ultrasound scan, upper gastrointestinal endoscopy, or a combination), what is the accuracy of magnetic resonance cholangiopancreatography (MRCP) with or without secretin and endoscopic ultrasound to identify chronic pancreatitis?
- Is the long term use of opioids more clinically effective and cost effective than non-opioid analgesia (including non-pharmacological analgesia) in people with chronic pain due to chronic pancreatitis?

- What is the most clinically effective and cost effective insulin regimen to minimise hypoglycaemia and hyperglycaemia for type 3c diabetes secondary to pancreatitis?

Further educational resources

- Patient.Info. Acute pancreatitis. <https://patient.info/health/gallstones-and-bile/acute-pancreatitis>
- Patient.Info. Chronic pancreatitis. <https://patient.info/health/chronic-pancreatitis-leaflet>
- National Institute for Health and Care Excellence. Patient experience in adult NHS services: improving the experience of care for people using adult NHS services (clinical guideline CG138). 2012. www.nice.org.uk/guidance/cg138

Guidelines into practice

- Are you aware of the indications to refer patients with chronic pancreatitis to a pancreatic specialist? What are the local pathways to make a referral?
- How might you ensure patients with chronic pancreatitis are offered HbA1c testing every 6 months and bone mineral density assessments every 2 years?
- Are you aware of guidance on management of type 3c diabetes or where you might find resources for patients about this condition?

How patients were involved in the creation of this article

Committee members involved in this guideline included people with pancreatitis who contributed to the formulation of the recommendations summarised here.

Further information on the guidance

This guidance was developed by the National Guideline Centre in accordance with NICE guideline development methods (www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf).

The Guideline Committee (GC) established by the National Guideline Centre comprised a pancreatic surgeon, a hepatobiliary and pancreatic surgeon, an upper gastrointestinal surgeon, a specialist gastroenterologist, a non-specialist gastroenterologist, a hepatobiliary paediatrician, a pain specialist, a radiologist, a pancreatic specialist nurse, a critical care specialist, a dietitian, and three lay members. The GC also co-opted a diabetologist.

Review questions were developed based on key clinical areas of the scope. Systematic literature searches, critical appraisals, evidence reviews, and evaluations of cost effectiveness, where appropriate, were completed for all questions except for stopping or reducing smoking, where other guidance was cross-referred to. Quality ratings of the evidence were based on GRADE methodology (www.gradeworkinggroup.org/), or an adapted GRADE methodology for qualitative and diagnostic reviews. These relate to the quality of the available evidence for assessed outcomes or themes rather than the quality of the study.

The scope and the draft of the guideline went through a rigorous reviewing process in which stakeholder organisations were invited to comment. The GC took all comments into consideration when producing the final version of the guideline.

A formal review of the need to update a guideline is usually undertaken by NICE after its publication. NICE will conduct a review to determine whether the evidence base has progressed significantly to alter the guideline recommendations and warrant an update.

Different versions of this guideline have been produced: a full version, a short version, and an online pathway. These are available from the NICE website (www.nice.org.uk/guidance/ng104).

Members of the guideline committee were: Ganesan Baranidharan, Jonathan Booth, Louise Carr, Richard Charnley, Tassos Grammatikopoulos, Peter Hampshire, Alex Horton, Amy Lucas, Stacey Munnely, Manu Nayar, Mary Phillips, Ashraf Rasheed, Robert Sutton, and Stuart Wood. James Shaw was a co-opted member.

We thank Drs Manu Nayar and Kofi Oppong for their assistance with the photographs.

Contributors: All authors contributed to the initial draft of this article, helped revise the manuscript, approved the final draft for publication, and agree to be accountable for all aspects of the article.

Funding: This work was undertaken by the National Guideline Centre, which received funding from NICE to develop this guideline. The views expressed in this publication are those of the authors and not necessarily those of NICE.

Competing interests: We declare the following interests based on NICE's policy on conflicts of interests published in 2014: no author has relevant interests to declare. Full statements can be viewed in the NICE guideline (www.nice.org.uk/guidance/ng104).

- 1 Machicado JD, Amann ST, Anderson MA, et al. Quality of Life in Chronic Pancreatitis is Determined by Constant Pain, Disability/Unemployment, Current Smoking, and Associated Co-Morbidities. *Am J Gastroenterol* 2017;112:633-42. 10.1038/ajg.2017.42 28244497
- 2 Hochman D, Louie B, Bailey R. Determination of patient quality of life following severe acute pancreatitis. *Can J Surg* 2006;49:101-6. 16630420
- 3 Zhu Z, Kabelac C, Gil G. Listening to the voices that matter: Chronic and recurrent acute pancreatitis patient perspectives. Mission: Cure; 2018. <https://mission-cure.org/2017site/wp-content/uploads/2018/07/Report.pdf>.
- 4 National Institute for Health and Care Excellence. Pancreatitis (NICE guideline NG104). 2018. www.nice.org.uk/guidance/ng104.
- 5 Knott L. Chronic pancreatitis. 2016. <https://patient.info/health/chronic-pancreatitis-leaflet>.
- 6 Knott L. Acute pancreatitis. 2016. <https://patient.info/health/gallstones-and-bile/acute-pancreatitis>.

- 7 National Institute for Health and Care Excellence. Stop smoking interventions and services (NICE guideline NG92). 2018. www.nice.org.uk/guidance/ng92.
- 8 National Institute for Health and Care Excellence. Depression in adults: recognition and management (clinical guideline CG90). 2018. www.nice.org.uk/guidance/cg90.
- 9 National Confidential Enquiry into Patient Outcome and Death (NCEPOD). Treat the cause. A review of the quality of care provided to patients treated for acute pancreatitis. 2016. www.ncepod.org.uk/2016report1/downloads/TreatTheCause_fullReport.pdf.
- 10 National Institute for Health and Care Excellence. Alcohol-use disorders: diagnosis and management of physical complications (clinical guideline CG100). 2017. www.nice.org.uk/guidance/cg100.
- 11 Baldini A, Von Korff M, Lin EH. A review of potential adverse effects of long-term opioid therapy: a practitioner's guide. *Prim Care Companion CNS Disord* 2012;14:PCC.11m01326.23106029
- 12 Woodmansey C, McGovern AP, McCullough KA, et al. Incidence, demographics, and clinical characteristics of diabetes of the exocrine pancreas (type 3c): a retrospective cohort study. *Diabetes Care* 2017;40:1486-93. 10.2337/dc17-0542 28860126
- 13 National Institute for Health and Care Excellence. Type 2 diabetes in adults: management (NICE guideline NG28). 2017. www.nice.org.uk/guidance/ng28.
- 14 National Institute for Health and Care Excellence. Diabetes (type 1 and type 2) in children and young people: diagnosis and management (NICE guideline NG18). 2016. www.nice.org.uk/guidance/ng18.
- 15 National Institute for Health and Care Excellence. Type 1 diabetes in adults: diagnosis and management (NICE guideline NG17). 2016. www.nice.org.uk/guidance/ng17.
- 16 National Institute for Health and Care Excellence. Continuous subcutaneous insulin infusion for the treatment of diabetes mellitus (technology appraisal guidance TA151). 2008. www.nice.org.uk/guidance/ta151.

Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to <http://group.bmj.com/group/rights-licensing/permissions>

Table

Table 1 | Features of acute and chronic pancreatitis

	Acute pancreatitis	Chronic pancreatitis
Definition	<ul style="list-style-type: none"> Acute inflammation of the pancreas 	<ul style="list-style-type: none"> Continuous prolonged inflammatory process of the pancreas
Usual presentation	<ul style="list-style-type: none"> Emergency setting Acute abdominal pain 	<ul style="list-style-type: none"> Primary care setting Chronic abdominal pain Delayed diagnosis is common
Prevalence	<ul style="list-style-type: none"> 56 cases per 100 000 people per year in UK 	<ul style="list-style-type: none"> 5 new cases per 100 000 people per year in Western Europe
Causes	<ul style="list-style-type: none"> Gallstones ~50% Alcohol ~25% Other factors ~25% (including hereditary factors, hypercalcaemia, hyperlipidaemia, autoimmune disease) 	<ul style="list-style-type: none"> Alcohol ~70-80% Hereditary factors ~5% Other factors ~15% (including hypercalcaemia, hyperlipidaemia, autoimmune disease)
Complications	<ul style="list-style-type: none"> Diabetes Accumulation of fluid in local collections (pseudocysts), abdomen (ascites), or chest (pleural effusion) In severe cases (25% of cases): <ul style="list-style-type: none"> Respiratory failure Kidney failure 	<ul style="list-style-type: none"> Malnutrition caused by digestive problems Diabetes, in up to 80% of cases Accumulation of fluid in local collections (pseudocysts), abdomen (ascites), or chest (pleural effusion) Pancreatic duct obstruction Biliary or duodenal obstruction Haemorrhage Painful inflammatory mass
Mortality	<ul style="list-style-type: none"> 15-20% in severe cases 5% overall 	<ul style="list-style-type: none"> 10-year survival ~70%

Figures

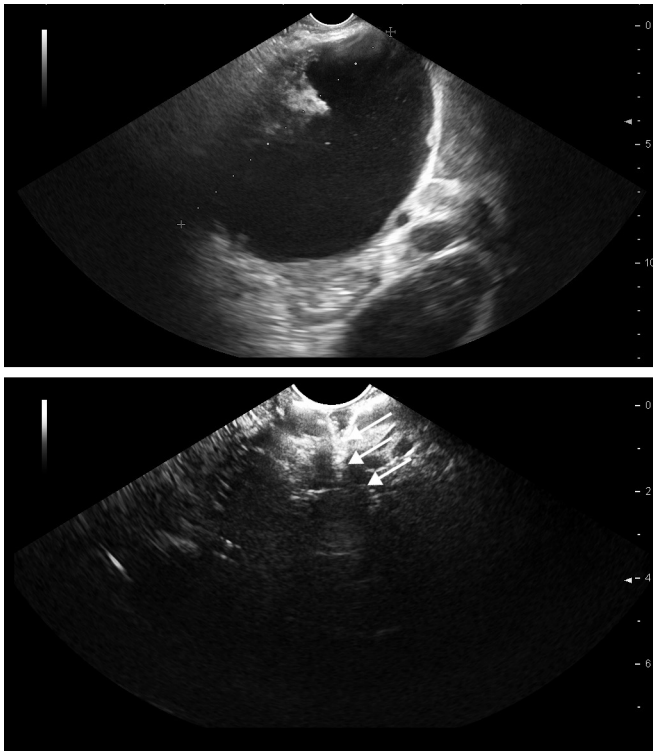


Fig 1 Endoscopic drainage, if anatomically feasible, is recommended for management of infected pancreatic necrosis. Top: Necrotic collection containing fluid, seen as dark, and solid necrosis (in line with the drainage track) seen as bright. Bottom: Self expanding metal stent (arrows) placed endoscopically and used to drain infected necrosis. Stent (Hot AXIOS, Boston Scientific) is deployed across the stomach wall, into the necrosis cavity, so allowing drainage of fluid and solid elements of necrosis.

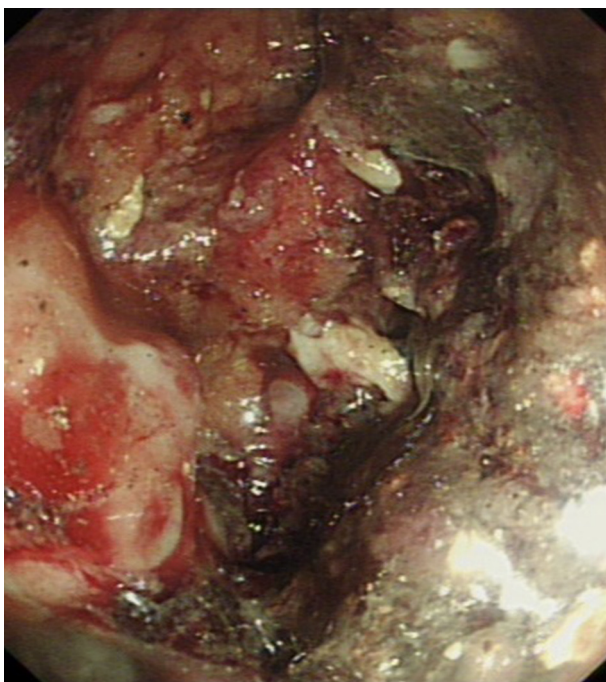


Fig 2 Endoscopic view inside pancreatic necrosis cavity after endoscope has been passed through a metal stent. On the right is infected pancreatic necrosis. On the left the necrosis has been cleared, yielding healthy granulation tissue.