Key learning points: NICE diverticular disease

Dr Michael Sproat identifies five key learning points for primary care from the 2019 NICE guideline on the diagnosis and management of diverticular disease

Diverticular disease is a digestive condition characterised by small pouches (diverticula) that protrude from the walls of the large intestine. It is a common cause of abdominal symptoms and a frequent presentation in both primary and secondary care. Large bowel diverticula may also be revealed incidentally by investigations for other problems.

Read this article to learn more about:

- diagnosing diverticular disease
- appropriate primary care management of acute diverticulitis and when to refer to secondary care
- antibiotic use in acute diverticulitis.

Read this article online at: **GinP.co.uk/apr20-diverticular**

Test and reflect patient scenarios on this topic are available on pp.20 and online at: **GinP.co.uk/apr20-diverticular-cases**

Most individuals with large bowel diverticula experience no difficulties, with only 10–15% developing symptomatic diverticular disease.[1] Indeed, it has been estimated that the lifetime risk of developing acute diverticulitis in patients with diverticulosis is only 4%.[2] Nonetheless, acute diverticulitis remains one of the most common acute conditions encountered by surgeons[3] and is associated with a variety of complications including bowel perforation, abscesses, and fistulae.

During the development of NICE Guideline (NG) 147 on *Diverticular disease: diagnosis and management*, systematic research reviews identified a lack of published evidence on which to base recommendations, particularly regarding the management of diverticulosis and diverticular disease. In these areas, a modified Delphi survey was used. This is an anonymous, multi-round technique used to reach a consensus of expert opinion. The Delphi panel comprised registered stakeholders for NG147 and included a wide range of professional, patient, and carer organisations.[1]

This article focuses on five key learning points for primary care from NG147.

1 Make a clear diagnosis

The terms diverticulosis, diverticular disease, and acute diverticulitis are often used interchangeably but there is wide variation in clinical features (see Box 1).

Moreover, the presentation can cause significant diagnostic confusion as the symptoms and signs of diverticular disease and acute diverticulitis may overlap with other conditions including irritable bowel syndrome, inflammatory bowel disease, renal colic, and malignancy, such as colorectal or ovarian cancer.[1]

In patients with intermittent symptoms suggestive of diverticular disease, current practice is to use either lower gastrointestinal (GI) endoscopy (flexible sigmoidoscopy/colonoscopy) or computed tomography (CT) colonography to confirm the presence of diverticula and exclude other conditions. It may be appropriate to arrange these tests routinely from primary care if this is supported by existing local services; however, if an individual meets the criteria for suspected malignancy, 2-week wait urgent referral pathways should be used.[1]

In patients presenting acutely with constant and/or severe pain where acute diverticulitis is suspected, secondary care assessment and contrast CT scan should be considered.[1]

2 Consider acute diverticulitis in younger age groups

The true prevalence of individuals with large bowel diverticula is difficult to determine as most are asymptomatic. However, it is more common in developed countries, being slightly more frequent in the USA than in Europe, and rare in Africa.[4] It is also age dependent with a reported prevalence of approximately 5% of people under the age of 40 years, increasing up to 65% of individuals aged over 65 years.[1,4]

Guidelines in Practice | April 2020 | Volume 23 | Issue 4

Box 1: Clinical features of diverticulosis, diverticular disease, and acute diverticulitis[1]

Diverticulosis

The incidental presence of large bowel diverticula in individuals with no symptoms

Diverticular disease

Suspect diverticular disease if a person presents with:

- *intermittent* abdominal pain in the left lower quadrant[A] with constipation, diarrhoea, or rectal bleeding **and/or**
- tenderness in the left lower quadrant[A] on abdominal examination

Acute diverticulitis

Suspect acute diverticulitis if a person presents with *constant* abdominal pain, usually severe and localising in the left lower quadrant[A] **and**

- fever **or**
- sudden change in bowel habit and significant rectal bleeding or rectal mucus **or**
- tenderness in the left lower quadrant,[A] a palpable abdominal mass, or distention, with a previous history of diverticulosis or diverticulitis.

[A] The site of pain and tenderness in diverticular disease and acute diverticulitis reflects the fact that most people develop diverticula in the sigmoid colon, although people of Asian origin may experience diverticula in the proximal large bowel and, therefore, present with right-sided pain.

Adapted from © NICE 2019. *Diverticular disease: diagnosis and management.* Available from: **www.nice.org.uk/guidance/ng147** All rights reserved. Subject to Notice of rights. NICE guidance is prepared for the National Health Service in England. All NICE guidance is subject to regular review and may be updated or withdrawn. NICE accepts no responsibility for the use of its content in this product/publication. See **www.nice.org.uk/re-using-our-content/uk-open-content-licence** for further details.

Recent years have seen a significant increase in the incidence of acute diverticulitis, especially among younger age groups.[3,5–7] In a case series from the United States, the mean age at initial presentation with acute diverticulitis was 62 years old.[7] Clinicians should, however, take care to still consider this diagnosis in younger adults presenting with acute left lower abdominal pain.

Otherwise, colonic diverticulosis is the most common finding during routine colonoscopy.[2] The reported prevalence of diverticulosis will be influenced by the more widespread use of CT imaging and lower GI endoscopy for a variety of indications, such as to diagnose early colorectal cancer and advanced adenomas.[8]

3 Provide lifestyle advice

The exact cause of large bowel diverticula is unknown, but formation may be associated with a low-fibre diet. This lowers stool bulk, slows transit times, and increases intraluminal pressure which promotes herniation of the colonic mucosa through weaker areas of the bowel wall.[9]

The presence of diverticulosis can concern patients but reassurance should be given that most people will develop no symptoms. No specific treatment is advised although lifestyle guidance (see Box 2) is encouraged, which may reduce the risk of diverticular changes and/or the development of symptomatic disease in the future.

A higher fibre diet, supplemented if necessary with the use of bulk-forming laxatives, is also recommended in patients with diverticular disease especially if they are constipated.[1] The benefits of increasing dietary fibre may take several weeks to be realised and should be continued long term if tolerated.[1] If an individual already has a good intake of dietary fibre, further or excessive increases may cause bloating and/or abdominal discomfort, in which case ongoing use of supplementation should be reviewed.

4 Consider urgent referral for acute diverticulitis

In a patient presenting with acute diverticulitis, initial clinical assessment must consider if possible complications are suspected, such as perforation or abscess (see Table 1). If so, or if the patient has poorly controlled pain, refer for same-day hospital assessment.[1]

One of the principal recommendations of NG147 is that patients with suspected complicated acute diverticulitis, as determined by the clinical assessment together with the presence of raised inflammatory markers, should have a contrast CT scan within 24 hours of hospital presentation or an appropriate alternative imaging modality if contrast CT scan is contraindicated.[1]

Clinical assessment alone is not thought to be accurate enough to exclude complications with contrast CT recognised as the gold standard diagnostic test for acute diverticulitis.[3] An early CT scan allows complications to be identified sooner, excludes other conditions, and distinguishes people with confirmed uncomplicated acute diverticulitis who can be managed more conservatively. Currently, NICE estimates that approximately

Guidelines in Practice | April 2020 | Volume 23 | Issue 4

Box 2: Lifestyle advice for people with diverticular disease[1]

- Eat a healthy, balanced diet including whole grains, fruit, and vegetables:
  - there is no need to avoid seeds, nuts, popcorn, or fruit skins
  - if an individual has constipation and a low-fibre diet, advise them to gradually increase fibre intake as this may minimise flatulence and bloating
- Ensure enough oral fluids if increasing fibre intake, especially if there is a risk of dehydration
- Encourage regular exercise, smoking cessation, and weight loss if the person is overweight or obese
- Consider bulk-forming laxatives for people with constipation or if a high-fibre diet is unacceptable to the person or not tolerated.

Adapted from © NICE 2019. *Diverticular disease: diagnosis and management.* Available from: **www.nice.org.uk/guidance/ng147** All rights reserved. Subject to Notice of rights. NICE guidance is prepared for the National Health Service in England. All NICE guidance is subject to regular review and may be updated or withdrawn. NICE accepts no responsibility for the use of its content in this product/publication. See **www.nice.org.uk/re-using-our-content/uk-open-content-licence** for further details.

Table 1: Symptoms and signs that suggest complicated acute diverticulitis[1]

Symptom or sign	Possible complication
Abdominal mass on examination or peri-rectal fullness on digital rectal examination	Intra-abdominal abscess
Abdominal rigidity and guarding on examination	Bowel perforation and peritonitis
Altered mental state, raised respiratory rate, low systolic blood pressure, raised heart rate, low tympanic temperature, no urine output, or skin discolouration	Sepsis (see the NICE guideline on sepsis)
Faecaluria, pneumaturia, pyuria, or the passage of faeces through the vagina	Fistula into the bladder or vagina
Colicky abdominal pain, absolute constipation (passage of no flatus or stool), vomiting, or abdominal distention	Intestinal obstruction

© NICE 2019. *Diverticular disease: diagnosis and management.* Available from: **www.nice.org.uk/guidance/ng147** All rights reserved. Subject to Notice of rights. NICE guidance is prepared for the National Health Service in England. All NICE guidance is subject to regular review and may be updated or withdrawn. NICE accepts no responsibility for the use of its content in this product/publication. See **www.nice.org.uk/re-using-our-content/uk-open-content-licence** for further details.

60% of people admitted with acute diverticulitis have a CT scan to confirm the diagnosis.[1] Therefore, this recommendation to increase the use of CT scanning may have significant implications for some secondary care centres. The increased cost of imaging is anticipated to be offset by a decrease in inpatient hospital stays for individuals with confirmed uncomplicated disease, as well as other advantages such as a reduction in the use of intravenous antibiotics.[1]

Conservative management in the community is still supported for people with suspected mild uncomplicated acute diverticulitis who are systemically well, but the patient should be reassessed if significant symptoms persist or if symptoms worsen, as this may indicate the presence of complications or the need to consider an alternative diagnosis.[1]

NICE Guideline 147 does not, therefore, prevent GPs from continuing to manage patients in primary care if they are confident that the patient has uncomplicated acute diverticulitis and symptoms are well controlled. Prompt access to specialist review and CT scanning may provide helpful information and should be considered when appropriate.

5 Recognise when antibiotics are not required

In patients with diverticular disease, simple analgesia such as paracetamol is recommended for the relief of abdominal pain. Antispasmodics may also be helpful.[1] Non-steroidal anti-inflammatory drugs and opioid analgesia should be avoided if possible as they may increase the risk of diverticular perforation.[1,10] There is also insufficient evidence that antibiotics are effective in preventing recurrent diverticular disease so these should not be offered.[1]

In people with acute diverticulitis who do not meet the criteria for urgent same-day hospital assessment, NG147 recommends considering a no-antibiotic prescribing strategy (watchful waiting) if the person is systemically well and has no co-morbidities that increase the risk of infection.[1] This recommendation reflects evidence from two randomised controlled trials that found antibiotic versus no-antibiotic treatment in patients with confirmed uncomplicated acute diverticulitis was associated with no significant difference in the rate of complications, hospitalisation, the need for sigmoid resection

Table 2: Antibiotics for adults aged 18 years and over with suspected or confirmed acute diverticulitis[1]

Antibiotic[A]	Dosage and course length[B]
First-choice oral antibiotic for suspected or confirmed uncomplicated acute diverticulitis	
Co-amoxiclav	500/125 mg three times a day for 5 days
Alternative first-choice oral antibiotics if penicillin allergy or co-amoxiclav unsuitable	
Cefalexin (caution in penicillin allergy) **with** metronidazole	**Cefalexin:** 500 mg twice or three times a day (up to 1 to 1.5 g three or four times a day for severe infection) for 5 days **Metronidazole:** 400 mg three times a day for 5 days
Trimethoprim **with** metronidazole	**Trimethoprim:** 200 mg twice a day for 5 days **Metronidazole:** 400 mg three times a day for 5 days
Ciprofloxacin (only if switching from intravenous ciprofloxacin with specialist advice; consider safety issues[C]) **with** metronidazole	**Ciprofloxacin:** 500 mg twice a day for 5 days **Metronidazole:** 400 mg three times a day for 5 days
Please see the full guideline for advice on first-choice intravenous antibiotics for suspected or confirmed complicated acute diverticulitis.	

[A] See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding, and administering intravenous (or, where appropriate, intramuscular) antibiotics.

[B] A longer course may be needed based on clinical assessment. Continue antibiotics for up to 14 days in people with CT-confirmed diverticular abscess.

[C] See MHRA advice for restrictions and precautions for using fluoroquinolones due to very rare reports of disabling and potentially long-lasting or irreversible side effects affecting musculoskeletal and nervous systems. Warnings include: stopping treatment at first signs of a serious adverse reaction (such as tendonitis), prescribing with special caution for people over 60 years and avoiding coadministration with a corticosteroid (March 2019).

BNF=British National Formulary; CT=computed tomography; MHRA=Medicines and Healthcare products Regulatory Agency

© NICE 2019. *Diverticular disease: diagnosis and management*. Available from: **www.nice.org.uk/guidance/ng147** All rights reserved. Subject to Notice of rights. NICE guidance is prepared for the National Health Service in England. All NICE guidance is subject to regular review and may be updated or withdrawn. NICE accepts no responsibility for the use of its content in this product/publication. See **www.nice.org.uk/re-using-our-content/uk-open-content-licence** for further details.

(surgery), recurrent diverticulitis, or mortality.[11–13] These studies did, however, involve participants having a CT scan on entry to the trial to exclude complicated disease and so caution is advised in extrapolating the findings to a primary care population who will have had no imaging.

Antibiotics remain appropriate if the person is systemically unwell, immunosuppressed, or has significant co-morbidity.[1] When prescribing an oral antibiotic in primary care for suspected or confirmed acute diverticulitis, follow the advice in Table 2.[1]

NICE Guideline 147 also specifically advises clinicians not to offer patients long-term antibiotics to prevent recurrent acute diverticulitis, because of a lack of evidence to support their use and concerns about the risk of antibiotic resistance.[1]

Summary

Diverticulosis is a common condition and only a minority of people ever develop symptoms. Where symptoms are present and diverticular disease is suspected, further investigations are advised both to confirm the diagnosis and, where necessary, exclude other important conditions such as malignancy or colitis.

Acute diverticulitis is an important cause of morbidity and, while primary care management remains appropriate in some situations, clinicians should be mindful of the risk of complications and have a low threshold for considering same-day hospital assessment. NG147 also emphasises the potential benefit from more widespread use of urgent contrast CT as part of an individual's initial assessment. Where complicated disease has been excluded there is increasing evidence that antibiotics have a more reduced role in the management of acute diverticulitis than previously thought.

Dr Michael Sproat

GP, Bristol

Member of the guideline development group for NG147

COVID-19 considerations

- Diverticulitis is not expected to carry any increased risk for severe COVID-19[14]
- On 4 April 2020, The British Society of Gastroenterology published COVID-19 guidance recommending that:[15]
  - all endoscopy except emergency and essential procedures should stop immediately
  - all symptomatic routine referrals should be deferred until further notice
- Patients with suspected complicated acute diverticulitis should still be considered for urgent hospital assessment and contrast CT scan, despite the significant pressure on acute admissions at present.

CT=computed tomography

Implementation actions for STPs and ICSs

written by Dr David Jenner, GP, Cullompton, Devon

The following implementation actions are designed to support STPs and ICSs with the challenges involved with implementing new guidance at a system level. Our aim is to help you consider how to deliver improvements to healthcare within the available resources.

- **Recognise** that diverticular disease is very common particularly in older people; although it rarely causes morbidity it often gives rise to diagnostic concern as the symptoms overlap with those for intra-abdominal malignancy
- **Establish** clear guidelines or a clinical pathway for the investigation and management of symptoms thought likely to be due to diverticar disease
- **Consider** the provision of direct access to contrast CT examination for GPs
- **Ensure** the availabilityof contrast CT for patients requiring hospital assessment for suspected diverticulitis
- **Publish** in local formularies indications for suspected diverticulitis and choices for antibiotics, where appropriate, to treat the condition (see article Table 2).

STP=sustainability and transformation partnership; ICS=integrated care system; CT=computed tomography

References

1. NICE. *Diverticular disease: diagnosis and management.* NICE Guideline 147. NICE, 2019. Available at: www.nice.org.uk/ng147
2. Shahedi K, Fuller G, Bolus R et al. Long-term risk of acute diverticulitis among patients with incidental diverticulosis found during colonoscopy. *Clin Gastroenterol Hepatol* 2013; **11** (12): 1609–1613.
3. Sartelli M, Catena F, Ansaloni L et al. WSES Guidelines for the management of acute left sided colonic diverticulitis in the emergency setting. *World J Emerg Surg* 2016; **11**: 37.
4. Delvaux M. Diverticular disease of the colon in Europe: epidemiology, impact on citizen health and prevention. *Aliment Pharmacol Ther* 2003; **18**: 71–74.
5. Andeweg C, Mulder I, Felt-Bersma R et al. Guidelines of diagnostics and treatment of acute left-sided colonic diverticulitis. *Dig Surg* 2013; **30** (4–6): 278–292.
6. Kang J, Hoare J, Tinto A et al. Diverticular disease of the colon – on the rise: a study of hospital admissions in England between 1989/1990 and 1999/2000. *Aliment Pharmacol Ther* 2003; **17** (9): 1189–1195.
7. Bharucha A, Parthasarathy G, Ditah I et al. Temporal trends in the incidence and natural history of diverticulitis: a population-based study. *Am J Gastroenterol* 2015; **110** (11): 1589–1596.
8. Bevan R, Lee T, Nickerson C et al. Non-neoplastic findings at colonoscopy after positive faecal occult blood testing: data from the English Bowel Cancer Screening Programme. *J Med Screen* 2014; **21** (2): 89–94.
9. A Weizman, Nguyen G. Diverticular disease: epidemiology and management. *Can J Gastroenterol* 2011; **25** (7): 385–389.
10. Kvasnovsky C, Papagrigoriadis S, Bjarnason I. Increased diverticular complications with nonsteroidal anti-inflammatory drugs and other medications: a systematic review and meta-analysis. *Colorectal Dis* 2014; **16** (6): 189–196.
11. Chabok A, Påhlman L, Hjern F et al. Randomized clinical trial of antibiotics in acute uncomplicated diverticulitis. *Br J Surg* 2012; **99** (4): 532–539.
12. Daniels L, Ünlü Ç, de Korte N et al. Randomized clinical trial of observational versus antibiotic treatment for a first episode of CT-proven uncomplicated acute diverticulitis. *Br J Surg* 2017; **104** (1): 52–61.
13. van Dijk S, Daniels L, Ünlü Ç et al. Long-term effects of omitting antibiotics in uncomplicated acute diverticulitis. *Am J Gastroenterol* 2018; **113** (7): 1045–1052.
14. Guts UK website. *Update: Coronavirus Covid-19 and people with conditions affecting the gastro-intestinal system.* Available at: gutscharity.org.uk/2020/03/update-coronavirus-covid-19-and-people-with-conditions-affecting-the-gastro-intestinal-system
15. British Society for Gastroenterology website. *Endoscopy activity and COVID-19: BSG and JAG guidance—update 03.04.20.* Available at: www.bsg.org.uk/covid-19-advice/endoscopy-activity-and-covid-19-bsg-and-jag-guidance

Guidelines in practice

View and comment on this article online at:
GinP.co.uk/apr20-diverticular