Focus Guided Reflection

Treatment and management of acute appendicitis

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**ABSTRACT** Bristow, N. (2004) Treatment and management of acute appendicitis. Nursing Times; 100: 43, 34–36. Acute appendicitis is one of the most common surgical conditions, and affects about seven per cent of the population. Perforation of the appendix and associated peritonitis is the most common complication. This guided reflection article discusses the signs, pre and postoperative treatment and nursing management of patients presenting with acute appendicitis.

Acute appendicitis is an inflammation of the appendix due to infection (Bruce and Finlay, 1997). It is known to be one of the most common surgical conditions, and affects about seven per cent of the population (Hardin, 1999). The disease can affect people of all ages but is most common in young adults from developed countries (Bruce and Finlay, 1997).

About 150 people die each year in England and Wales from acute appendicitis (Duncan and Stoddard, 1992), with the majority of deaths seen in the older age group. The primary cause of death is a delay in diagnosis (Duncan and Stoddard, 1992) leading to perforation of the appendix followed by peritonitis. The treatment is surgical removal of the appendix (Dunlop, 2002). Prompt diagnosis and surgical referral reduces the risk of perforation and prevents complications (Hardin, 1999).

**Causes**

It is not always known how the appendix becomes inflamed but obstruction is a main cause. In about 40 per cent of cases this is due to faecolith – hardened faeces (NDDIC, 2004). The appendix’s location between the join of the small and large bowel mean it can become blocked with faecolith. If faecolith blocks the lumen of the appendix, mucus and pus cannot drain into the caecum. This can result in dilation and perforation of the appendix, letting faecal matter enter the peritoneal cavity causing peritonitis.

Obstruction may also occur due to carcinoma of the caecum. The appendix is the most common site for function within the body, but it can become diseased. If untreated it may burst and cause peritonitis, infecting other organs and sometimes leading to death (National Digestive Disease Information Clearinghouse, 2004).

**Pathology**

The appendix is situated in the right iliac region of the abdomen. It is attached to the caecum, which is the area where the small and large bowel join (Fig 1). The full term for the appendix is the vermiform appendix.

The appendix is described by Tortora and Grabowski (1993) as a twisted, coiled tube that is about 8cm long. A normal appendix measures 6mm or less in diameter (Hardin, 1999). If it is larger than this, it is likely the patient has appendicitis.

In most people the appendix is located in the intra-peritoneal region but studies have shown that 30 per cent may lie in a pelvic position, hidden from the anterior peritoneum. This can change the clinical manifestations of the disease (Hardin, 1999).

The appendix is not a vital organ and has no particular

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**REFERENCES**


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**LEARNING OUTCOMES**

- Identify where the appendix is situated
- Recognise the signs and symptoms of appendicitis
- Understand pre and postoperative nursing care for a patient with appendicitis
- Know the possible complications for these patients
carcinoid tumours. The vast majority are benign but if they are larger than 2cm they can infiltrate the wall of the appendix and spread (Dunlop, 2002).

**Signs and symptoms**
The signs and symptoms of appendicitis differ among patients (Irving and Jones, 1998). Abdominal pain is the most common symptom. Specific characteristics of abdominal pain and other associated symptoms have proved to be reliable indicators of acute appendicitis (Hardin, 1999). Some studies also show that sudden onset of epigastric pain or periumbilical pain may occur in less than 50 per cent of patients with appendicitis (Irving and Jones, 1998). The remaining patients present with a variety of pain patterns (Bruce and Findlay, 1997).

Loss of appetite, nausea and vomiting are commonly associated with appendicitis (Hardin, 1999), as is a change in bowel habit with a tendency to constipation (Bruce and Findlay, 1997).

The patient’s temperature may be normal or slightly raised. The pulse may show an increase and the tongue is usually furred and moist (Colmer, 1986). The white blood cell (leukocyte) count may be raised above 10,000/mm³ (Irving and Jones, 1998).

**Referred pain**
When the appendix is hidden from the anterior peritoneum the usual signs and symptoms may not be present. Pain and tenderness can occur in places other than the right lower quadrant area (Hardin, 1999). Pain may not be localised, particularly in children. Tenderness may be diffuse or noted only on rectal or pelvic examination (Irving and Jones, 1998).

A patient with a pelvic appendix may show no abdominal signs, but the rectal examination may elicit tenderness (Hardin, 1999).

**Appendicitis with peritonitis**
Perforation of the appendix is the main source of risk that leads to complications. Perforation occurs when the tube from the appendix becomes blocked. Research shows 20 per cent of patients undergoing surgery for appendicitis have a ruptured appendix (Peterson, 2002).

If perforation occurs in acute appendicitis, faecal matter can enter the peritoneal cavity causing peritonitis. Peritonitis is the inflammation of the peritoneum, which is caused by bacteria migrating through the damaged wall to infect the peritoneal cavity (Dunlop, 2002). Hardin (1999) explains that diagnosis of a perforated appendix is usually easier than that of a non-perforated one. This is due to the more specific symptoms (Box 1). As a result a brief period of hospital observation in some cases will not increase the risk of perforation but may increase and improve diagnostic accuracy.

**Investigations**
Investigations needed for suspected appendicitis are (Hardin, 1999; Irving and Jones, 1998):
- A careful systemic examination of the abdomen is essential. This is the most accurate way to diagnose appendicitis and will be carried out by a member of the surgical team;
- The white blood cell count should be checked. In 80 per cent of cases the level will be elevated;
- Ultrasound and computerised tomography scans are rarely used.

**Diagnosis**
The signs and symptoms of acute appendicitis vary among individuals, which can make diagnosis difficult. The number of conditions that can be diagnosed from acute right iliac fossa pain is enormous (Duncan and Stoddard, 1992).

As the appendix has no apparent function within the body, removal of the organ would be safer if any of symptoms suggest appendicitis rather than waiting for further signs to confirm diagnosis. Pelvic examination should be performed on all women with abdominal pains, as gynaecological conditions can mimic appendicitis.

**Treatments**
Appendectomy is the best and most common treatment performed for appendicitis. This is usually carried out by laparoscopic surgery. An oblique incision is made in the right iliac fossa region splitting, not cutting, the muscles to gain access to the peritoneum (Colmer, 1986). Antibiotics should be given to patients as either therapeutic or prophylactic therapy depending on the severity of the case (Colmer, 1986).

About 20 per cent of patients who present with symptoms of appendicitis and have an appendectomy are found to have had a normal appendix (Hardin, 1999). Despite this statistic it is accepted that prompt treatment is important to prevent morbidity and mortality.
**References**


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**BOX 2. PREOPERATIVE CARE FOR PATIENTS UNDERGOING APPENDECTOMY**

- Rehydration may be necessary to restore fluid balance
- Vital signs should be monitored and recorded every 2–4 hours
- Heat should not be applied to the abdominal area
- Do not administer analgesia until diagnosis has been established
- Do not administer aperients, as induced peristalsis may cause perforation
- Explain the procedure to the patient
- Prepare the operation site

**Nursing implications**

**Preoperative care**

It is important to prepare a patient several hours pre-surgery. The patient may be dehydrated due to symptoms such as vomiting. It may be necessary to administer IV fluids. The patient’s vital signs should be recorded every 2–4 hours. The nurse should not apply any heat over the area of pain while the patient is awaiting diagnosis as this could cause the appendix to rupture (Box 2).

Analgesia should not be administered before examination because this can lead to an inaccurate diagnosis as the pain may subside and the examination will be ineffective. Aperients should also be avoided as induced peristalsis may cause perforation. If appendicitis has been diagnosed regular analgesia, usually an opioid depending on pain severity, should be given to make the patient comfortable before treatment. They may feel anxious so the nurse or surgical team should fully explain the procedure to them and answer any questions. The operation site will be washed and shaved before surgery, depending on local procedures.

**Postoperative care**

The severity of the patient’s pain needs to be assessed with the use of a pain scale. Appropriate pain relief can then be administered. Vital signs should be regularly monitored at half-hourly intervals for two hours postoperatively, hourly for two hours and, if stable, every four hours while the patient is recovering in hospital.

If the patient has had a straightforward appendectomy the surgical team should review the patient on recovery and decide when they may eat and drink.

A drain may have been inserted during surgery. If so, the output of the drain should be recorded every 24 hours. The drain can be removed when there is minimal drainage – usually 50ml or less.

The wound should be managed aseptically. If the wound is covered with a dry dressing then it should be changed every 1–2 days. Clips/stitches should be removed 10 days postoperatively. The patient can go home with these in place and the district or practice nurse can remove them. If dissolvable stitches have been used this is unnecessary, although a visit to check the wound will reduce anxiety. Before discharge, the patient must be confident in how to manage their wound and have details of who they should contact in case of concern.

The patient should be encouraged to get up and out of bed as soon as possible to prevent the formation of emboli. Anticoagulants are usually administered in the form of subcutaneous injections before surgery and postoperatively. Antiembolism stockings should be worn. If peritonitis has developed, the patient’s postoperative management will be over a longer period but will follow the same principles.

The patient will not be able to commence food and fluids for a few days, this is to enable the bowel to regain normal function. The convalescence period is almost invariably smooth and the patient recovers rapidly (Colmer, 1986). The hospital stay for patients who have undergone an uncomplicated appendectomy is usually 2–3 days. In most cases the patient will be discharged when their temperature is normal and their bowels have started to function again (Peterson, 2002).

People can live a full life without their appendix. Changes in diet, exercise or other lifestyle factors are not necessary (NDDIC, 2004).

**Conclusion**

Appendicitis is a condition that is prevalent in the developed world and should have minimal complications. Surgical action should be taken without delay. If left untreated there is a risk of peritonitis, which is the main complication of this condition.

Medical awareness of appendicitis has improved and complications are less common. With the use of laparoscopic surgery recovery time is rapid.

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**GUIDED REFLECTION**

Each week Nursing Times publishes a guided reflection article to help you with your CPD. After reading the article use the following points to help you write your reflection:

- Write about why you decided to read this article and how it is relevant to your work;
- What are the main points that the article makes about the pathology of the appendix;
- Consider how you would use this information to answer patients’ questions about the appendix;
- Outline the important aspects of pre and postoperative care;
- Summarise how you will use this information in your practice.