

Feline Intestinal Intussusception



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Introduction

Intestinal intussusception is the invagination of one segment of intestine into the lumen of an adjacent segment of intestine.³ The interior segment of intestines is referred to as the intussusceptum while the exterior segment is the intussusciens.³ The neck of the intussusceptum is the most distal, or aboral, end of the telescoped section of intestines.³ This telescoping of intestines leads to an intestinal obstruction which can progress to ischemia of the involved tissues.³ Intussusception is the most common extraluminal cause of gastrointestinal obstruction.⁴ The most common locations for intussusception in the feline patient are enteroenteric and ileocolic, but it can occur at any location including gastroesophageal or pylorogastric.^{3,6} The intussusception can result in complete or partial obstruction of the intestines and can progress to bacterial overgrowth, ischemia, necrosis, and even sepsis.⁸ There are many potential causes of intussusception including enteritis caused by a variety of etiologies, intestinal tumors, idiopathic, history of recent surgical procedure or systemic illness with idiopathic being the most commonly diagnosed.³ Age predilection is typically bimodal with young cats below the age of one and cats above the age of six.³

Pathophysiology

The majority of intestinal intussusceptions are idiopathic; therefore, the exact pathophysiology is not known in these cases.³ Any abnormality in the intestinal tract that results in variation of motility can progress to intussusception.⁹ Enteritis is a common cause of motility alterations and is therefore a common cause of intussusception.⁹ Enteritis can develop from many conditions including parvovirus, parasitic infections, foreign bodies, dietary changes or indiscretion, and viral or bacterial infections.³ For cases that are diagnosed with enteritis, the gastrointestinal tract has hypermotile segments with adjacent segments that have decreased

motility or ileus.⁹ Ileus is commonly associated with recent surgical procedures due to post-operative opioid medications, inflammation or potential adhesions.³ The hypermotile segments will telescope into the adjacent segment, leading to intussusception.³ These segments vary in size depending on the surrounding mesentery which can prevent further invagination.⁹ The intussusception can occur in either a normograde or retrograde direction, with normograde being the most common.² Once formed, the intussusception will cause a partial or complete obstruction of the intestinal tract and become edematous and swollen which can eventually lead to compression of the vessels of the intussusceptum.¹ As a result of the vascular collapse, the tissues become edematous, ischemic, turgid, and if left untreated, necrotic.³

History and Presentation

There is no breed predilection for intestinal intussusception in cats, but Siamese cats are overrepresented.¹ There is a bimodal age predilection with cats less than one year of age and cats greater than six years of age.³ Cats less than one year of age are more commonly diagnosed with idiopathic intussusception while older cats are diagnosed with intussusception secondary to enteritis or neoplasia.³ These patients commonly present with a history of intermittent or profuse vomiting, anorexia, and lethargy.¹ Cats have been reported to have a shorter duration of clinical signs than those seen in dogs.⁷ In one study, the average length of clinical signs seen in cats were one week or less prior to diagnosis, while the duration of clinical signs in the canines ranged from one day to ten weeks.⁷ Other common clinical signs include scant, bloody diarrhea, weight loss and signs of abdominal pain.¹ Severity of the clinical signs is dependent on the location, duration, and degree of obstruction.² On physical exam a firm, tubular mass may be palpated in the mid to caudal abdomen depending on the location of the intussusception.³ Absence of palpable mass does not necessarily rule out intussusception because the location may prevent

palpation.⁹ Adhesions have been reported to occur more commonly in cats than in dogs with intestinal intussusception which is thought to be due to the difference in severity of serosal damage.⁷

Diagnostic Approach and Considerations

Diagnosis of intestinal intussusception can be difficult due to the non-specific clinical signs that can be seen upon presentation. Physical exam can be unremarkable and vital parameters can be within normal limits but hypothermia and tachycardia may be present along with abdominal pain.⁶ Palpation of a thickened, tubular shaped abdominal mass is highly suggestive of an intussusception.⁹ Baseline CBC, chemistry, urinalysis, and fecal exam should all be performed in attempts to rule out other causes or to diagnose the underlying cause of the intussusception.⁶ Survey abdominal radiographs should be performed but are not always specific to intussusception.⁹ Survey abdominal radiographs may not show significant signs with incomplete obstruction, but with complete obstruction, the radiographs may reveal a section of intestines that has gas and fluid-filled dilatation depending on the amount of gas accumulation.^{3,9} Contrast abdominal radiographs can be performed by using a barium enema or upper gastrointestinal tract study to localize the obstruction.³ An upper gastrointestinal tract study will reveal a ribbon of barium seen aboral to the intussusception site.³ The gold standard diagnostic tool is abdominal ultrasound. The diagnosis can vary depending on experience and skill of the ultrasonographer, but if a “target-like” lesion is seen on abdominal ultrasound, this is considered pathognomonic and is therefore the most beneficial diagnostic tool for diagnosing intestinal intussusception.⁴ The “target-like” lesion is an alteration of hyperechoic and hypoechoic rings within the lumen of the intestines.⁷ Differential diagnoses include intestinal foreign body, linear

foreign body, intestinal volvulus and torsion, adhesions, abscess, hematoma and intestinal neoplasia.^{3,4}

Treatment and Management Options

Medical management is rarely an effective form of treatment.⁹ It is possible for the intussusception to reduce spontaneously but in these cases, it often recurs.⁹ Manual reduction through the abdominal wall has been documented but the recurrence rate seems to be much higher in these cases.⁷ Patient stabilization is a key to treatment due to the history of vomiting and diarrhea which leads to electrolyte imbalances and dehydration.^{3,4,9} Surgical intervention should be pursued for all intussusception cases.³ The patient should be placed in dorsal recumbency for a midline celiotomy.³ An abdominal exploratory is performed to localize the intussusception site and samples of surrounding tissues should be taken for biopsies to help diagnose the cause of intussusception.³ Depending on the duration of the intussusception, it may or may not be reducible by applying pressure on the neck of the intussusception while attempting to milk out the intussusceptum.³ This should be performed with the upmost care to avoid tearing segments that are potentially damaged or segments that have formed fibrin adhesions.³ If the intussusception is able to be reduced, the involved segments should be thoroughly evaluated for any damage to tissue or vasculature as well as the presence of any masses within the lumen of the segments as this may be the origin of the intussusception.³ An enterectomy, or resection and anastomosis, should be performed if the involved segments have been deemed non-viable, a mass is palpated, reduction is unsuccessful, or mesenteric vessels have been damaged.³ The gastrointestinal tract is highly vascular and healing is generally rapid and uncomplicated.¹⁰ Post-operative care varies depending on the individual's needs including electrolyte, hydration, or

acid-base status as well as adequate analgesia administration.³ Nutritional support may be warranted in patients with persistent vomiting by use of an esophageal tube.³ Potential complications include dehiscence, recurrence, obstruction, ileus, and peritonitis.³

Prognosis

Prognosis varies depending on the severity, duration, location and cause of each case.³ If left untreated, patients with intestinal intussusception may have spontaneous reduction but the majority of cases will reoccur and will eventually succumb to the obstruction.³ Prognosis with surgical and aggressive supportive intervention is good but approximately one-third of these patients will have a recurrence if enteroplication is not performed.³ One study revealed the recurrence rate after a resection and anastomosis surgery was between 11% - 20%.⁹ Up to 25% of cases that are manually reduced or have no surgical intervention, will recur.⁹ In order to reduce the chance of recurrence an intestinal enteroplication can be performed which involves laying the intestinal loops side by side with at least three loops on either side of the site of intussusception and then sutured together.² While this may reduce the risk of intussusception recurrence, it also has significant side effects such as strangulation, obstruction, peritonitis, foreign body perforation and recurrence.⁵

Conclusion

Intestinal intussusception is a condition mostly seen in cats younger than one year of age or greater than six years of age. The patient will present with non-specific clinical signs including vomiting, diarrhea, abdominal pain, and/or a palpable tubular abdominal mass. Many cases are considered a surgical emergency but if surgery is performed along with aggressive supportive care, the prognosis is good.

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