CASE REPORT e-ISSN: 2349-0659 p-ISSN; 2350-0964CASE REPORT

Anterior Cutaneous Nerve Entrapment syndrome: A Case Report

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Abstract

Anterior cutaneous nerve entrapment syndrome (ACNES) is a usually misdiagnosed and untreated or undertreated chronic state of pain. This syndrome is described by the cutaneous branches of the lower thoracoabdominal intercostal nerves become trapped at the lateral border of the rectus abdominis muscle, causing intense, frequently refractory, and persistent pain. The management strategies for ACNES include trigger point injections (diagnostic and therapeutic), ultrasound-guided blocks, and surgical neurectomy, in combination with systemic medication, as well as some newer technique such as radiofrequency ablation.

Keywords: Anterior cutaneous nerve entrapment syndrome, Chronic abdominal pain, Nerve entrapment syndrome

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Introduction

Anterior cutaneous nerve entrapment syndrome (ACNES) is a commonly and untreated or undertreated chronic state of pain. This syndrome is described by the cutaneous branches of the lower thoracoabdominal intercostal nerves become trapped at the lateral border of the rectus abdominis muscle, causing intense, frequently refractory, and persistent pain.[1,2]

Prevalence

The prevalence of the ACNES ranges between 15% and 30%.[3] The predictable incidence of abdominal wall pain is one in 1800 patients.[4]

Etiology

The following are the predisposing factors for the patients to develop ASNES are previous abdominal surgery, pregnancy, increased/vigorous activity in the job, and sports. However, most of the patients develop the manifestations of ASNES without any risk factors, it occurs spontaneously.[5]

Applied Anatomy

The lower intercostal nerves (T8–T12) pass between the transversus abdominis and internal oblique muscles until they reach the rectus abdominis, where they enter the rectus channels.[6] Figure 1 shows the areas are supplied by anterior cutaneous nerve.[6]

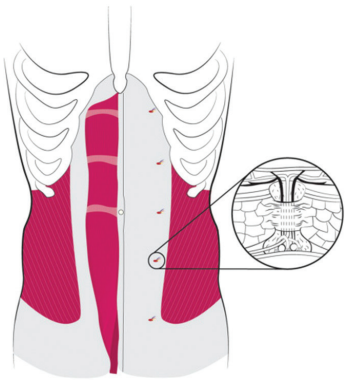

Figure 1: Anterior cutaneous nerve supply

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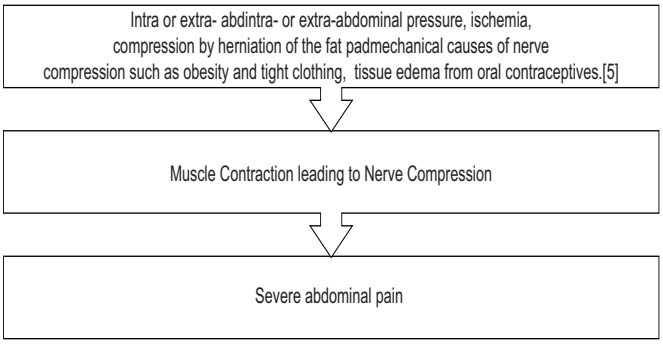
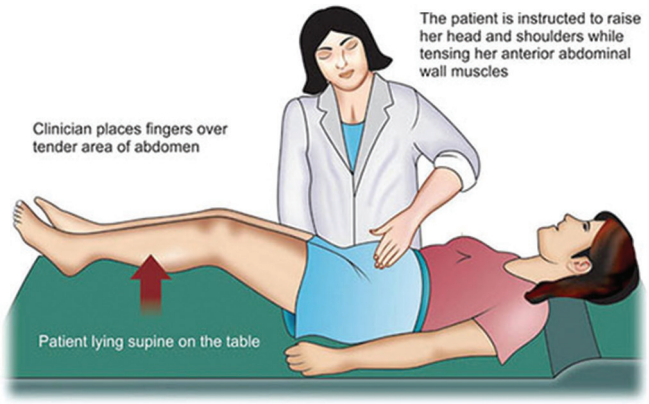
Pathophysiology

The main reason the patient is having pain is that compression of the thoracic intercostal nerves between abdominal muscles.[1,2,7]



Clinical Manifestations

The most characteristic sign of ACNES is severe sharp, dull, or burning abdominal pain which is aggravated by any kind of activity such as standing, walking, stretching, laughing, coughing, and sneezing because of an increased tension in the abdominal muscle and the less pain is experienced in the supine position.[1,2] The pain at the site may be increased (hyperalgesia) to normal tactile stimulation (allodynia).[9,10] The patient also experiences extreme sensitivity to sensation (hyperesthesia).[9,10]



When the patient is asked to elevate his head with his arms crossed over his chest after the examiner has pinpointed the precise location of the abdominal wall's greatest pain. One When the examiner's finger is in place and the amount of discomfort increases or remains constant during this movement. This is called as Carnett's sign and it was described by Carnett's sign in 1926.[1,2,11] These maneuvers constrict the rectus abdominis muscles and cause the pain because of entrapping of the nerve. Negative Carnett's sign indicates pain is predominantly because of disorder related to intra-abdominal organs.[1,2,11] Patients may also have demonstrated voluntary guarding of the affected area on palpation (hover sign).[12]

Diagnosis

There are no specific diagnostic tests can confirm ASNES. Van Assen T and his team formulated the following criteria to diagnose ASNES.[4] They are

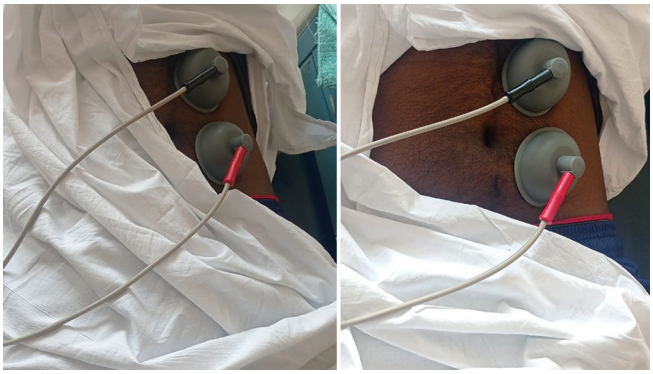
1. Abdominal pain at the specific region in one side for at least 1 month
2. Abdominal tenderness at the specific region in one side at the lateral border of the rectus abdominis
3. Carnett's sign is positive
4. Skin pinch test is positive or altered skin perception to light touch or cold
5. Laboratory and diagnostic tests are normal and there is no evidence of inflammation, perforation, or infection
6. A reduction in the pain to half a percentage after administering local anesthetic agent preferably lidocaine at the diagnostic trigger point temporarily.[8,13-15]

Management

The management includes administration of anesthetic and or glucocorticoid injection, neurectomy, intraperitoneal onlay mesh reinforcement, analgesics, transcutaneous nerve stimulation (TENS), pulsed or thermal radiofrequency ablation, and modification of the activities. The evidence supports that administration of local anesthetics agents such as lidocaine, 0.5% bupivacaine or 0.2% ropivacine with or without triamcinolone at regular intervals with or without ultrasound guidance relieves abdominal pain.[3-4,16-18] With regard to refractory pain, surgical release, anterior neurectomy, or intraperitoneal onlay mesh reinforcement can be done.[3-5,10,16-22] The drugs such paracetamol, NSAIDS, adjuvants, or opioids can be used to reduce pain.[6] TENS can be used for acute flaring up of pain.[6] A minimally invasive pulsed or thermal radiofrequency ablation can be used.[4,23] Patients need to be instructed to discontinue or reduce the activity involves the contraction of abdominal muscles.

Case Report

A 34-year-old male was admitted with complaints of intermittent cramping abdominal pain localized to left lower abdominal quadrant area for the past 5 years. The pain was moderate to severe in intensity with pain score ranged between 3 and 10, each episode lasting around 2–4 h/episode and pain was aggravated by after eating food immediately, but sometimes even in empty stomach and it was relieved during sleep. Since his pain was worsened, he was unable to go for work. He also has history of passing stools after 15–20 min of straining. On examination, the pain was between T10 and T12 dermatomal level over the rectus muscles, a focal area of tenderness and no tenderness on deep palpation, no allodynia and Carnet sign was negative. His BP was 114/70 mm of Hg, pulse rate was 74/min. Fecal Calprotectin test was negative and it indicates that there was no sign of inflammation in the intestine. Three sets of stool parasites are normal; stool routine and occult blood were also normal. Gastrocopy was normal. Antineutrophil cytoplasmic antibodies (MPO, PR3) is <2 RU/mL. All inflammatory markers were normal and their values were: C3 was 116 mg/dL and C4 was 32.7 mg/dL, erythrocyte sedimentation rate 12 MM and C-reactive protein is <3.06 mg/L. Pancreatic enzymes were normal and they were serum amylase was 77 U/L and serum lipase was 22 U/L. ECG was normal. Urine spot porphobilinogen, heavy metal screenings were negative. Gastrocopy and computed tomography enterography were normal, and there was no bowel obstruction or bowel wall thickening. All results were normal. He was diagnosed to have probable ACNES. He was treated with Tab. Tramadol and Cap. Pregabalin 75 mg OD. Tab. Mirtazapine 15 mg HSOD. He was receiving TENS.



Nursing Management

Nursing Diagnosis

Acute pain in the abdomen related to entrapment of the anterior cutaneous nerve as evidenced by verbalization of pain with pain score of 8/10.

Expected Outcome

The patient will verbalize relief of abdominal pain as evidenced by reduction in pain score.

Nursing Interventions

- Assessed and documented the characteristics of pain (location, intensity, frequency, and quality)
- Ensured TENS is done at regular timings - pocket TENS was done 3 times (10 kHz)
- Core strengthening exercises, hip flexor stretches, ilio psoas

stretches, and extensor strengthening exercises were taught to the patient and regularly performed
- Hot applications provided for ten minutes over mid back
- Inferential therapy was provided once a day
- Administered analgesics.

Evaluation

The patient verbalized decreased pain as evidenced by reduction in the pain score to 6/10.

Nursing Diagnosis

Imbalanced nutrition, less than body requirements, related to anorexia.

Expected Outcome

Patient maintains optimal nutritional status and weight within 10% of pre-treatment weight.

Nursing Interventions

- Taught patient to avoid unpleasant sights, odors, sounds in the environment during mealtime
- Suggested foods that are preferred and well-tolerated low Fermentable Oligosaccharides Disaccharides Monosaccharides and Polyols (FODMAP) diet
- Respected ethnic and cultural food preferences
- Encouraged adequate fluid intake, but limited fluids at mealtime
- Suggested smaller, more frequent meals
- Promoted relaxed, quiet environment during mealtime with increased social interaction as desired
- Encouraged frequent oral hygiene
- Provided pain relief measures and positioned patient properly at mealtime.

Evaluation

Patient maintained optimal nutritional status and weight within 10% of pretreatment weight.

Constipation related to decreased gastrointestinal function.

Expected Outcome

Normal bowel function will return as evidenced by absence of constipation.

Nursing Interventions

- Encouraged increased fluid intake within limits of fluid restriction
- Provided low FODMAP diet which otherwise causes abdominal pain, gas, bloating, diarrhea, and constipation
- Instructed patient about foods with high water content
- Monitored bowel function.
- Encouraged increased mobility within patient's exercise tolerance
- Encouraged the patient to use laxatives and enemas sparingly.

Evaluation

Normal bowel function returned, as evidenced by absence of constipation.

Disturbed sleep pattern related to pain, hospital environment and anxiety.

Expected Outcome

Normal sleep pattern is enhanced as evidenced by verbalization of undisturbed sleep hours.

Nursing Interventions

- Allowed the patient longer times of uninterrupted sleep and rest by grouping nursing care activities
- Ensured that environmental noise is decreased, and the room lights are dimmed
- Provided back rubs and other measures to increase comfort to promote sleep and rest.

Evaluation

Normal sleep pattern was enhanced as evidenced by verbalization of undisturbed sleep for 6–7 h.

Fatigue related to increased pain, inadequate sleep/rest, inadequate nutrition, and emotional stress.

Expected Outcome

Fatigue is minimized as evidenced by incorporating strategies necessary to modify fatigue as part of daily activities.

Nursing Interventions
- Developed and encouraged a sleep routine (warm bath and relaxation techniques that promote sleep
- Explained the importance of rest for relieving emotional stress
- Explained how to use energy conservation techniques (pacing, delegation, and setting priorities)
- Facilitated development of appropriate activity/rest schedule
- Encouraged adherence to treatment plan
- Encouraged adequate nutrition including source of iron from food and supplements.

Evaluation

Fatigue was minimized he incorporated strategies necessary to modify fatigue as part of daily activities.

Conclusion

Most of the times, this syndrome is overlooked because the diagnostic tests are negative for intra-abdominal pathology. Hence health care professionals need to be updated on this condition to care for this patients.

Declaration Of Patient Consent

Oral consent was obtained from the patient.

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