# Abdominal Wall Pain in Obese Women: Frequently Missed and Easily Treated

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# Abdominal wall pain in obese women: frequently missed and easily treated

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## Abstract

Chronic abdominal pain is a common symptom with an extensive differential diagnosis. The work-up is frequently costly, yet many patients elude definitive diagnosis. We describe 12 obese women with long-standing abdominal pain, many of whom eluded diagnosis but who met criteria for abdominal wall pain. Each patient underwent a focused history and physical examination which included checking for Carnett's sign and performing a "pinch test". All patients had positive Carnett's sign and pinch tests. An injection of local anaesthetic, with or without corticosteroid, completely relieved the pain within 10 min. Of the six patients seen in follow-up, four remained pain free and two responded to a second injection of local anaesthetic. Abdominal wall pain is an under-appreciated cause of chronic abdominal pain. Diagnosis is often straightforward and treatment with a local injection of anaesthetic is both diagnostic and curative.

## BACKGROUND

Despite a reasonably extensive literature, the abdominal wall is not often considered as the source of pain in patients presenting with abdominal pain. I have seen many patients with previously undiagnosed chronic abdominal pain who have been found to have abdominal wall pain and have been impressed that a significant percentage of these patients have been obese women.

## CASE PRESENTATION

Between 1998 and 2006, a number of patients with chronic abdominal pain were seen in our medical clinic or hospital. Many of these patients had defied definitive diagnosis. Each patient was evaluated with a careful history with specific attention to the possibility of abdominal wall pain and a focused physical examination which included Carnett's test and the "pinch test".

Carnett's test is performed by first localising the area of maximal tenderness while the patient is relaxed. While this area is being pressed, the patient is asked to raise her upper back effectively tensing the abdominal wall. Worsening of the pain is considered a positive test. In the pinch test, the skin and subcutaneous tissues of the area of maximal tenderness are grasped at the point of attachment of the fat to the abdominal musculature. The pannus is then pinched with moderate pressure. If this elicits moderate or severe pain, the test is considered to be positive.

In patients with a positive Carnett's test, positive pinch test or other historical elements which suggested abdominal wall pain, the area of maximal tenderness was injected with lidocaine. Complete or nearly complete relief of the abdominal pain was interpreted as confirming the abdominal wall as the source of pain.

### Results

The characteristics of the patients without an obvious diagnosis are outlined in table 1. Average age was 41.7 years and average body mass index (BMI) was 36.9 kg/m$^2$. Ten patients had undergone at least one diagnostic study but in two patients the presentation and physical examination were felt to be sufficiently characteristic of abdominal wall pain that no further evaluation was required. On examination many of these women had subcutaneous fat which felt inhomogeneous and nodular. The duration of the pain was from 3 months to 1.5 years.

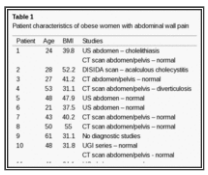

Table 1

Patient characteristics of obese women with abdominal wall pain

## TREATMENT

Each area of maximal tenderness was injected with between 3 and 5 ml of lidocaine. All patients responded with complete or near complete resolution of their pain.

## OUTCOME AND FOLLOW-UP

Six of the 12 patients were seen in follow-up more than a week after their initial injection and four reported sustained relief of their pain. The two patients with recurrence of abdominal pain responded to a second injection.

## DISCUSSION

Cyriax was the first to describe abdominal pain originating from the abdominal wall.[1] In 1926 Carnett recognised that abdominal pain could be caused by neuralgia affecting one or more of the lower six intercostal nerves and developed a simple test to help localise the origin of symptoms to the abdominal wall.[2]

Classically, abdominal wall pain tends to be persistent and nagging. If a patient can pinpoint the pain to a localised area, an abdominal wall source is suggested. In our patients, Carnett's test and the pinch test were uniformly positive. Several studies have demonstrated the utility of the physical examination in diagnosing abdominal wall pain.[3,4]

The exact aetiology of the pain in these women is unknown. One possibility is entrapment of the abdominal cutaneous nerve. Kopell and Thompson[5] have theorised that peripheral abdominal cutaneous nerve entrapment occurs at anatomical sites where the nerve abruptly changes direction to enter a fibrous or osseofibrous tunnel or where it passes over a fibrous or muscular band. Abdominal cutaneous nerve entrapment syndrome has been well characterised.[6] In very obese individuals, traction on the nerve by the hanging abdominal pannus would further aggravate nerve irritation and ischaemia.

As the subcutaneous abdominal fat in several of the described women was somewhat nodular, it is possible that the fat itself could be the cause of the pain as seen with angiolipomas or in Dercum's disease. One or more angiolipomas, in the abdominal subcutaneous compartment, could cause abdominal wall pain.[7] Dercum's disease is a disorder defined by a symptom complex which includes: (1) multiple, painful, fatty masses; (2) generalised obesity; (3) asthenia, weakness and fatigability; and (4) mental disturbances, including emotional instability, depression, epilepsy, confusion and dementia.[8]

The preponderance of abdominal wall pain in women has been previously noted.[9] It is well documented that there is a gender difference in the perception of pain.[10] In fact, oestrogen receptors have been identified throughout the central neuroaxis.[11] Peleg described abdominal wall pain due to entrapment of the abdominal cutaneous nerve in an adolescent girl taking an oral contraceptive.[12] He and his colleagues also described abdominal wall pain in pregnant women,[13] again suggesting a possible role for oestrogen in the pathogenesis of the pain.

Once the diagnosis is made, treatment is straightforward. Deep local injection with an anaesthetic at the site of maximal pain gives rapid, and often sustained, relief. In patients with suspected abdominal cutaneous nerve entrapment syndrome, injection of the fibrous tunnel through which the nerve exits is curative. The use of a 25-gauge 3-inch spinal needle is sometimes necessary in order to reach the deeper abdominal wall structures.

### LEARNING POINTS

- The abdominal wall is a not infrequent source of chronic abdominal pain.
- Obese women are predisposed to abdominal wall pain.
- Elements of the history and simple physical diagnostic manoeuvres reliably point to the abdominal wall as the source of the pain.
- Localised injection with an anaesthetic is both diagnostic and therapeutic.

## Footnotes

**Competing interests:** none.

## Article information

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Reminder of important clinical lesson

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