





PAIN MATTERS

Community Information Series
Hunter Integrated Pain Service
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Persistent Abdominal Pain

		Information content Intermediate
	Contacts for further discussion Your local doctor will be able to discuss persistent abdominal pain further. Staff from Hunter Integrated Pain Service can help if you are referred to us.	
	Links and further reading Understanding Pain (www.hnehealth.nsw.gov.au/pain /Pain information for the community/Understanding Pain)	

Pain mechanisms

Abdominal pain can arise from damage or injury to internal organs (viscera) producing “visceral pain” or more superficial (somatic) structures such as the abdominal wall or spine producing “somatic pain”. Neuropathic pain can develop if there is injury to nerves supplying abdominal sensation. Referred pain occurs when pain related messages from structures within the abdomen are felt in other parts of the body.

As with any pain there is a difference between acute and persistent types. Acute abdominal pain is more likely to relate to damage or injury to visceral or somatic structures. Persistent abdominal pain is less likely to be associated with tissue damage. Its message more often relates to patterns that develop in the pathways of spinal cord and brain. Sensitisation, behavioural and mindbody factors are usually key contributors (see Understanding Pain).

There are a number of different nerve pathways carrying messages from the abdomen:

1. *Local nerve pathways in the gut (enteric nervous system)*: These nerves have been called a “little brain in the gut”. They are involved in local reflex responses and changes in gut function.
2. *Nerve pathways travelling via the sympathetic nervous system (the “fight or flight” system)*: These pathways link through the spinal cord to the brain. They transmit “pain” related impulses from most of the internal abdominal organs.
3. *Nerve pathways travelling via the parasympathetic nervous system (the “rest and digest” system)*: These pathways travel either via the vagus nerve (from the upper abdomen) or the sacral parasympathetic nerves (from the deep pelvis). They also transmit some “pain” related impulses from internal organs.

4. *Pain pathways from the abdominal wall:* Messages from the skin, muscle or other tissues of the abdominal wall are transmitted by so called somatic pathways to the spinal cord and then the brain.

Descending inhibitory pathways from the brain also play a role. These descend in the spinal cord and damp down “pain” related messages travelling up to the brain.

Differences between somatic and visceral pain

Somatic pain, such as from the abdominal wall, is usually precisely localised and clearly described. This relates to a plentiful supply of pain receptors. In contrast, visceral pain from internal organs is poorly localised and difficult to describe. This is because pain receptors in internal organs are fewer in number and type. The bowel for example can be cut or burned without pain, yet it is sensitive to stretch.

Amplification in pain pathways

If abdominal pain persists it is likely that a pattern of sensitisation or amplification of nerve messages has developed. Once this happens a relatively minor input to the system can cause significant pain. The amplification of pain from internal organs is known as “visceral hyperalgesia”. It may relate to changes in the periphery (eg. bowel) or centrally in the spinal cord and brain. Peripheral changes, for example, may be triggered by low grade infection, repeated surgery, allergy or inflammation in the bowel. This results in sensitisation of pain receptors and increased excitability in the local nerves in the gut (enteric nervous system). Central amplification relates to “wind up” in the spinal cord and brain. Mindbody factors can contribute to “visceral hyperalgesia” from the top down by sensitising either peripheral or central nerve pathways.

In research models visceral hyperalgesia can be confirmed by a test in which a balloon is inflated within the bowel and produces a markedly increased pain response compared to normal.

Causes of abdominal pain

There are many possible contributors to abdominal pain however they can be grouped into two major categories:

1. *Structural problems:* These are problems in which the structure of an organ is changed by a disease process. Examples include a stomach ulcer, kidney stones, pancreatitis, bowel obstruction or various types of cancer. Structural problems in blood vessels or the spine can also produce abdominal pain.
2. *Functional problems:* In these problems the major issue relates to change in function rather than change in structure. This is the case in visceral hyperalgesia. Irritable bowel syndrome is an example of a functional problem. It is now considered to be a type of visceral hyperalgesia.

In some situations there may be a combination of structural and functional problems.

Assessment of persistent abdominal pain

Assessment of abdominal pain aims to determine whether there is a problem of structure or function. This involves a medical history and physical examination. At times specific investigations may be necessary.

For the person with persistent abdominal pain an important question is when to see their general practitioner or hospital emergency department for assessment of a flare up. If any of the following occur then medical review is recommended:

1. Ongoing vomiting – particularly if dehydration develops
2. Significant change from usual bowel pattern (diarrhoea or constipation)
3. Gastrointestinal blood loss – associated with vomiting or a bowel motion
4. Ongoing weight loss

Management of persistent abdominal pain

If a specific structural problem is identified there may be a specific medical treatment available. In addition specific treatment may be required for associated problems such as dehydration. If this is present hospital admission and treatment with intravenous fluids may be required.

On the other hand, if the pain relates to dysfunction rather than structural change then a “whole person” management approach is recommended. This approach can also be used for management of structural problems if there is no specific medical curative treatment. Whole person management addresses biological factors, thoughts, actions, nutrition and personal story. Specific options include:

1. *Regular exercise*: Lack of exercise can often contribute to constipation particularly if combined with medication that slows bowel movement. Exercise can therefore improve pattern of bowel activity. Maintaining good muscle tone in the abdominal wall can also be helpful in reducing persistent abdominal pain.
2. *Nutritional approaches*: It is worth considering whether food allergy is contributing to persistent abdominal pain. This can be discussed with your doctor. There are some specific nutritional supplements that can be helpful such as omega 3 essential fatty acids and antioxidants (see Nutrition and Pain www.hnehealth.nsw.gov.au/pain Pain information for the community/ Lifestyle and Nutrition). Dietary modification can also help to treat constipation.
3. *Thoughts*: Unhelpful patterns of thinking commonly develop in the context of persistent pain. Gaining awareness of these patterns can be helpful.
4. *Personal Story*: Persistent pain at times can be an indicator of deeper underlying issues. Therefore exploration of the mindbody connection and personal story offers another potential treatment pathway. (see www.hnehealth.nsw.gov.au/pain Pain information for the community/ Meaning and Personal Story).

5. *Medication:* The use of opioid (morphine like) medication is controversial in persistent abdominal pain. Morphine can often bring initial pain reduction. On the other hand morphine like drugs cause slowing of normal gut contraction. This can potentially cause painful gut distension and constipation. In addition there is new evidence to suggest that opioid medication can cause or worsen pain by increasing sensitisation of nerve pathways (opioid induced hyperalgesia). Another problem is the development of tolerance which is common with the long term use of opioids. This means that pain relief gets less over time. If opioids are used it should be part of a carefully supervised and broad based program. If constipation is a problem then the use of laxative medication is sometimes necessary. Other groups such as antidepressants and antiepilepsy medication can be considered particularly if there is a neuropathic component.
6. *Nerve blocks:* These can be used to treat abdominal pain in certain situations. The duration of benefit is generally not long lasting. Therefore the main use is in managing cancer pain.

Using a combination of the above strategies it is often possible to wind down an amplified system as in the case of visceral hyperalgesia. The ultimate aim is to retrain the brain and improve overall quality of life.