Chronic Pain After Surgery

Chronic pain after surgery has until recently been a neglected topic, says Dr Bill Macrae

The extent of the problem first came to light in a survey of patients attending pain clinics in Scotland and the north of England. This survey showed that 20% of patients thought that surgery was one of the causes of their pain and of these patients, half thought it was the only cause. I have reviewed almost 400 published reports of chronic pain after specific operations such as breast removal, gall bladder removal and chest surgery. The reports varied in how much information was given and that has made making generalisations difficult, but what follows is an attempt to do that.

What is chronic post-surgical pain?

Knowing when pain becomes chronic is always difficult. Is it pain that is unlikely to get better, or that lasts longer than the usual healing time or is it pain that lasts a certain time, for example 3 or 6 months? In pain after surgery there is an added problem because many patients have had their surgery to treat a painful condition such as gallstones or a disc problem. Is the pain simply a continuation of the old pain, or is it new? And even if it is new is it related to the surgery? Sometimes it is obvious that something has changed. Nerve damage after an operation for gallstones is quite different from the original pain, for example. Sometimes it is very difficult to disentangle the pains, especially if the patient's original pain (that the surgery was designed to treat) was not in fact helped by the surgery. However, it is possible to list features of chronic post-surgical pain:

- The pain develops after a surgical operation
- The pain lasts for at least 2 months
- Other causes of pain (such as an infection or cancer) are not present
- The pain is not pain continuing from the patient's original condition.

Let's look at examples of chronic post-surgical pain.

Pain after breast surgery

This is a common complication after mastectomy (breast removal, with or without removal of the lymph nodes in the arm pit). There are several types: phantom breast pain, pain in or around the scar, pain in the chest wall and pain the arm. Phantom pain is pain that seems to come from an amputated limb, breast or other body part. Phantom sensations after mastectomy might not involve pain, but there are reports of 13% of patients 3 weeks after surgery and 17% of patients 6 years after surgery having phantom breast pain. Scar pain affects nearly a third of mastectomy patients. Surgery is not the only cause of this pain, however. In a study of 38 patients with pain in the arm after surgery only 8 had pain that was definitely attributed to nerve damage during surgery. Other causes included infiltration by the original cancer and radiation therapy. One interesting fact from this study is the timing of the pain. True post-surgical pain develops within a few weeks of surgery. In contrast pain from infiltration by cancer or radiotherapy normally develops after a longer time such as 5 years. This is also the case after chest surgery (see below).

The nature of the breast surgery influences the occurrence of problems. About 50% of patients who have had breast removal surgery followed by surgical reconstruction have pain after a year, compared with 30% of patients who have had breast removal without reconstruction. More patients whose reconstructive surgery involved implants have pain than those who did not have implants. Pain is not the only problem. Many are troubled by numbness, pins and needles or sensitivity as well as pain. A quarter of patients affected by these symptoms say that their daily lives are affected. Patients who have had radiotherapy and chemotherapy as well as surgery are more likely to have pain. Studies have shown that patients suffering these symptoms are under treated and have poor pain relief and symptom control.

Not only has the problem of chronic pain after surgery been neglected, but misdiagnosis is common. In one report only 2 out of 18 patients with post-mastectomy pain had been correctly diagnosed before referral. Many of the patients were labelled as having 'emotionally derived pain' by the referring doctor. Using a standard measure of depression the authors of this report found that only 6 of the 18 patients had mild depression. Given that all of these patients had both cancer and chronic pain, it is surprising that the level of depression was not higher! What is depressing is that several years later, articles are still appearing which implicate psychological causes for pain after breast surgery.

Pain after chest surgery

When you consider what is involved in surgically entering the chest (thoracotomy), it is not surprising that many patients suffer long-term pain afterwards. In order to gain access to the chest, the surgeon has to either remove part of a rib or spread the ribs apart. This inevitably causes mechanical damage. There are nerves (the intercostal nerves) that lie along the ribs and are liable to injury, which might be quite subtle and need not involve being cut through. Experience suggests that many of the worst pain syndromes are caused by partial nerve injury. Although pain after chest surgery is fairly common, the severity varies. In one study 15% of patients with pain after chest surgery were sufficiently troubled to warrant referral to a pain clinic. Once again, the timing of when the pain starts helps define what caused it. Pain that is related to the operation usually starts immediately after it or in the first few weeks afterwards. Studies have also shown that patients with severe acute pain immediately after surgery are more likely to have chronic pain.

Pain after gall bladder surgery

It is difficult to assess whether the pain after gall bladder surgery is due to the surgery itself because most people with gall bladder problems are already in severe pain before their surgery. About 40% of patients who have had their gall bladder removed report problems, which include chronic pain.

Pain after dental surgery

Up to 13% of people have chronic pain after dental surgery. The types of pain reported include hypersensitivity and phantom tooth pain. Most patients do not tell their dentist about their pain so dentists will be underestimating the extent of the problem.

Pain after amputation

Pain after limb amputation is undoubtedly the best known of all the post-surgical pain conditions. After limb amputation, the pain can be either stump pain or phantom pain. In stump pain, patients often report a tender spot on the stump and this has led many surgeons to perform further operations to try and find the cause. Patients in the past have frequently had further

amputations in the mistaken belief that this would cure the problem. Such operations rarely help stump pain and sometimes make it worse or make it more difficult for the patient to wear an artificial limb.

Phantom limb pain can affect between 50% and 85% of amputees. It usually starts in the first three weeks after surgery. It can last between 1 hour and 15 hours a day and can vary between 5 days a month and 20 days. Similarly the reported severity is very variable.

There seems to be no truth in the belief that children do not get phantom limb pain or that people born without limbs cannot suffer from it. Recent research has shown that part of the pain after amputation arises in the brain itself and this underlines the futility of methods of treatment aimed at the stump.

Other chronic post-surgical pain syndromes

Other operations with known risks of chronic pain include hernia repair, joint replacement and surgery for back pain. Vasectomy is the second most common operation performed on men worldwide. It is performed for social reasons rather than illness and men having vasectomies are pain-free before the procedure. It is distressing therefore to find that chronic testicular pain occurs in between 5% and 33% of vasectomy patients.

Treatment of chronic post-surgical pain

Treatment does not depend upon what sort of surgery the patient has had but rather on the mechanism that results in the patient having pain. For example, not everyone who suffers pain following a mastectomy will have that pain for the same reason. The treatment will depend on the reason for the pain developing and not on the fact that the surgical operation happened to be a mastectomy.

The most important aspect of treatment is to listen to the patient's story, perform a thorough examination and then give a full and frank explanation of the problem. Patients often report finding this approach helpful in itself. Often they feel that, in the past, their symptoms have been dismissed and not taken seriously. Sometimes, patients have been told that the pain will go away soon after the operation and this causes mistrust and resentment.

The best treatment for the patient's pain will depend upon the mechanism causing it. Treatments include: tricyclic antidepressants, anticonvulsants, painkillers, TENS (transcutaneous electrical nerve stimulation) and injections. Nerve destruction (peripheral nerve ablation) has no place in the management of chronic post-surgical pain.

It is not always possible to control the pain and other symptoms adequately. In such cases, patients will require a psychology-based pain management approach to help them to cope with their problems and reduce the impact on their daily lives.

Reasons for neglect

It is clear that chronic post-surgical pain is common, can be severe and results in distress and disability for patients. Why then has this been neglected? It is hard for any doctor to accept that the treatments they offer may cause problems, especially if they feel they may be to blame. In the past, doctors have often sought to blame patients for diseases that they feel helpless to treat.

Looking at the whole spectrum of chronic pain conditions after surgery, it seems unlikely that the cause of the pain is something that the surgeon has done wrong. It seems more likely that this is the inevitable result of surgery in a certain percentage of patients. Certain groups of patients may be more at risk from pain after surgery than others. The patients at higher risk include patients who suffer from such conditions as Raynaud's disease, irritable bowel syndrome, migraine, fibromyalgia and perhaps several other conditions as well. Changes in the nervous system may well lie behind many of these conditions. There is an urgent need for good quality research to improve our understanding of who is at risk and what causes chronic pain after surgery.

Perhaps if it was more widely accepted that chronic pain can arise after surgery, three benefits might result. The first might be that if patients were given accurate data about the incidence of pain after certain operations, some of these patients might decide against having operations that weren't entirely necessary. The second benefit would be that patients would have their pain acknowledged and they would be treated more sympathetically and would not feel blamed in the way that many do at present. Thirdly, it might also benefit surgeons who are undoubtedly trying to do the best for their patients. Patients do not blame their doctor if they develop a rash after taking a drug, as it is accepted that side effects can occur. If pain after surgery was acknowledged in the same way, it might be easier for everyone.

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