

# Chapter 2

## Pelvic Pain in Different Cancer Diseases

The pain may have various characteristics according to the different pelvic neoplastic diseases (Table 2.1). The features and the latency of the symptoms depend on many factors, including the anatomy and innervation of the pelvis and the type of cancer and its progression.

Consequently, in many pelvic cancers, pain is a nonspecific symptom and the patients do not experience pain until the cancer is at later stages. For instance, bone pain and flank pain are symptoms of advanced disease in urothelial tract cancers. Nevertheless, pain from ureter can be typically referred to the groin and glans penis.

In ovarian cancer, pain is both a late manifestation and a symptom difficult to interpret because of the intercommunication of the ovarian and pelvic nerve plexus. Thus, pain from the ovaries is often vague, including pressure in abdomen, pelvis, back or legs, and less frequently painful intercourse.

Contrarily, moderate pain during sexual intercourse is most present in cervical cancer, while pelvic pain, leg pain, and back pain, eventually transmitted to the hypogastrium, are symptoms of advanced disease, with pain prevalence and severity likely to increase as the disease advances [1]. Moreover, lumbosacral plexopathy caused by retroperitoneal lymph node metastases is the most common neurologic complication in patients with advanced cervical cancer [2]. Bone pain caused by bone metastasis is another late manifestation of advanced malignancy. The vertebral bodies are by far the

TABLE. 2.1. Pelvic pain in different cancer diseases

<i>Cervical cancer</i>	Moderate pain during sexual intercourse (painful intercourse). Pelvic pain, leg pain, and back pain are symptoms of advanced cervical cancer, with pain prevalence and severity likely to increase as the disease advances	<i>Urothelial tract cancers</i>	Referred to the groin and glans penis. Bone pain and flank pain are symptoms of advanced disease. Bladder cancer pain can be referred to the perineal area
<i>Endometrial cancer</i>	Painful intercourse. Pain in pelvic area. When the cancer disease originates from the fundus of the uterus, pain is most commonly referred to the hypogastrium and elicits a complaint of midline lower abdominal pain	<i>Prostate cancer</i>	Rarely stranguria. Almost always pain is the first symptoms in case of bone metastasis. Rectal, urethral, suprapubic, and penile pain, as well as back pain and pain in the abdominal area, are late and rare symptoms, associated to the expansion of the tumor within the pelvis
<i>Ovarian cancer</i>	Pelvic pain, often vague, including pressure in abdomen, pelvis, back, or legs. Painful intercourse (less frequent). Pain and symptoms of frozen pelvis in late stages	<i>Primary bone cancer</i>	The pain may be quite vague at first but gradually tends to become persistent and more severe over the affected part of the bone

<i>Primary fallopian tube carcinoma</i>	Colicky pain relieved by discharge and abdominal or pelvic vague pain (40 %)	<i>Rectal cancer</i>	Early stages of rectal cancer may have no symptoms. However, generalized symptoms of rectal cancer may include pain in the rectum and abdominal pain or discomfort. Gas pains, cramps, or a feeling of fullness. Pelvic pain and back pain are late symptoms, usually indicating nerve trunk involvement
<i>Spinal cord tumors</i>	<i>Lumbosacral.</i> Root pain in groin region or sciatic distribution or both <i>Cauda equine.</i> Unilateral pain in back and leg becoming bilateral when the tumor is quite large		
<i>Recurrent rectal cancer (cancer that has returned or progressed following initial treatment with surgery, radiation therapy, and/or chemotherapy)</i>	Early symptoms depend on recurrence location, type of primary resection. Refractory and severe pelvic pain is considered a typical finding of local advanced disease	<i>Anal cancer</i>	Moderate persistent or recurring pain, or pressure, in the area around the anus
<i>Bone metastasis (Breast, Kidney, Prostate, Thyroid, Lung)</i>	Bone pain is often the first symptom. The pain often comes and goes at first. It tends to be worse at night and may be relieved by movement. Later on, it can become constant, severe, and may be worse during activity	<i>Multiple myeloma</i>	Pain (e.g., hip pain or back pain) is often the first symptom and can become severe, especially in case of fractures. Normally, the pain tends to be persistent and made worse by movement

most frequently involved bones, followed by the pelvis, ribs, and extremities.

A not well-specified pelvic pain, or pain during intercourse, is often combined with vaginal bleeding (present in 90 % of women diagnosed with endometrial cancer) after menopause or bleeding between periods in endometrial cancer. When the cancer disease originates from the fundus of the uterus, pain is most commonly referred to the hypogastrium and elicits a complaint of midline lower abdominal pain. However, pain in the pelvis is more common in later stages of the disease.

Primary fallopian tube carcinoma is an uncommon tumor accounting for approximately 0.14–1.8 % of female genital malignancies. Although symptoms are not specific, this rare cancer is rarely asymptomatic, in contrast to ovarian cancer. Symptoms include vaginal bleeding or spotting (60 %), colicky pain relieved by discharge, and abdominal or pelvic vague pain (40 %) [3].

In urothelial cancer, patients may be affected by referred pain to the groin and glans penis. Bone pain and flank pain are symptoms of advanced disease. While bladder cancer pain can be also referred to the perineal area, ureter pain can have the lower quadrant and loin, as area of presentation.

Because prostate cancer rarely spreads to vital organs, almost always pain is the first symptom in case of bone metastasis. Rectal, urethral, suprapubic, and penile pain, as well as back pain and pain in the abdominal area, are late and rare symptoms, associated to the expansion of the tumor within the pelvis [4].

The rectal cancer in early stages may have no symptoms. A change in bowel habits, such as diarrhea, constipation, or narrowing of the stool, which lasts for more than a few days, and rectal bleeding (the most common symptom present in about 80 % of individuals with rectal cancer) or blood in the stool, as well as discomfort, gas pains, or a feeling of fullness are more frequently reported. In spite of this, cramping or abdominal/pelvic pain are less frequent (20 %). Pelvic pain and back pain are late symptoms, usually indicating the nerves' involvement. In this advanced stage of the disease, a

partial large-bowel obstruction may cause colicky abdominal pain and bloating.

Approximately, one-third of patients with pelvic colorectal cancer recurrence present no symptoms [5]. Early symptoms depend on recurrence location and type of primary resection. Usually, pelvic pain and bowel obstruction from involvement of the small intestine in the pelvic mass are symptoms of recurrence abdominoperineal resection [6]. Refractory and severe pelvic pain is considered a typical finding of local advanced disease because it is a sign of involvement and/or compression of pelvic structures by the mass [7]. According to some authors, the degree of pelvic pain was also used to classify patients with rectal cancer recurrence in order to make a judgment on prognosis [8].

Cancers of the anal canal account for about 1–2 % of all intestinal cancers. They are a set of cancer diseases, including squamous cell carcinoma, adenocarcinoma, melanoma, neuroendocrine tumors, carcinoid tumor, Kaposi sarcoma, leiomyosarcoma, or lymphoma [9]. Squamous cell cancer of anal canal comprises about 75 % of all the anal canal cancers. Its clinical presentation appears in different forms and may be easily confused with a wide range of benign disorders like fissures, hemorrhoids, dermatitis, and anorectal fistulae [10]. Patients typically present with a perianal mass with or without pruritus ani, discharge (50 %), bleeding (45 %), or pain (30 %) [11]. The latter is characterized as moderate, persistent, or recurring pain, or pressure, in the area around the anus. Spread of anal cancer is mainly local and regional. Anal musculature is involved early because the mucosa is very close to the underlying sphincters. Anal canal cancer grows circumferentially, and this feature results in narrowing and stenosis of the anal sphincter. When the sphincter is invaded, the tumor spreads into the ischiorectal fossae, the prostatic urethra, and bladder in men and the vagina in women. Anal cancer may spread via the lymphatic vessels (10–15 %) to the perirectal nodes or at a higher level and to nodes at the bifurcation of the superior rectal artery [10]. All these conditions may involve severe somatic or visceral nociceptive pain, as well as neuropathic pain due to nerves' involvement.

In the recurrent rectal cancer, 29 % of patients may do not exhibit symptoms [12]. However, in symptomatic patients, the pain is the main clinical feature and usually it is a “severe pain,” influencing significantly the QoL of the patients.

In primary cancer of pelvis bone, the pain may be quite vague at first tending gradually to become persistent and more severe over the bone-affected part. More often, the pain is the first clinical manifestation of a bone metastasis. This is a significant clinical feature because after lung and liver, the bone is the third most common site for metastases. In several cases of pelvic cancers, pain is the main point to guide the diagnosis. The more appropriate example is prostate cancer pain in which bone metastasis is the main clinical complication and pain is almost always the earliest symptom of the disease, becoming starting point for the diagnosis [13]. Epidemiologic data suggest that among the primitive cancer, prostate (32 %), breast (22 %), kidney (16 %), lung, and thyroid cancers have a high risk of metastatic bone disease [14]. First of all, these metastatic bone lesions are in the spine, followed by the pelvis, especially in the ilium [15]. Osteolytic lesions in the periacetabular regions can lead to pathological fractures, with important functional impairment and severe acute pain [16].

Multiple myeloma is the most common primary bone cancer in adult, accounting for 1 % of all cancers [17]. Although about 20 % of patients have either mild or no symptoms at the time of diagnosis, multiple myeloma bone lesions are the primary cause of bone pain, which is one of the most common symptoms associated with this tumor. In many patients, moreover, pain (e.g., hip pain or back pain) is often the first symptom of the disease. Myeloma cells form masses in the bone marrow that may disrupt the bone structure. They also secrete substances which, increasing the osteoclastic activity, lead to unbalanced bone turnovers and, therefore, to an increase of the risk of fractures. In multiple myeloma, the skeletal site most often affected by the disease is the spine, but the pelvic bone is involved too. Pain is often severe, especially in case of bone fractures, and precipitated by movement (incident pain), without relief with rest; thus, pelvic localizations are

very painful and can lead to a stooped posture, reduction of the mobility, and consequently, they have a significant impact on QoL. Limitation of mobility by pain increases the risk of pneumonia, deep venous thrombosis of lower limbs, and decubitus ulcers [18].

In spinal cord tumors, the patients experience severe neuropathic pain with different features depending on the location. While in lumbosacral spinal cord tumors, there is root pain localized in groin region or in the innervation zone of sciatic nerve or in both areas; in cauda equine spinal cord tumors, the pain is unilateral and localized in the back and the leg becoming bilateral when the tumor is quite large.

A clinical condition characterized by intense pain, sensory disturbance, progressive muscle weakness, reflex impairment, leg edema, and disability due to a specific neuropathic mechanism is the neoplastic lumbosacral plexopathy (NLP). It is an infrequent complication associated with advanced cancer disease (pelvic, abdominal, and retroperitoneal tumors) for local or regional progression of the tumor which invades the plexus directly or tracks along the connective tissue or epineurium of nerve trunks. Furthermore, lumbosacral plexopathy can be also a site effect of radiotherapy or a surgical complication (for more details, see also Chap. 3). When the cause is a neoplasm, the plexus involvement occurs most commonly due to intra-abdominal tumor extension (73 % of cases), while less commonly it is caused by the growth of metastases or lymph nodes. A bilateral plexopathy (causing incontinence and impotence) can also occur in patients affected by breast cancer metastases or advanced prostate cancer. The most prevalent types of tumors causing NLP are colorectal tumors (20 %), sarcomas (16 %), breast tumors metastases (11 %), lymphoma (9 %), and cervical tumors (9 %) [19]. The pain is usually constant (exacerbation may occur with prolonged ambulation, or sitting, or with the Valsalva maneuver), dull, aching, or pressure like, but it is rarely burning. It may worsen at night, and patients generally have difficulty finding a comfortable position. Furthermore, the presence of autonomic symptoms is less frequent; one of

these, the “hot and dry foot,” [20] occurs because of the involvement of the sympathetic components of the plexus. NLP is a very disabling cancer complication, because of the difficulty to treat pain, the sensory loss, and the gait abnormalities, caused, for instance, by the drop of the foot and by the peripheral edema. Malignant psoas syndrome is a subtype of NLP characterized by severe pain due to proximal lumbosacral plexopathy, painful fixed flexion of the ipsilateral hip, and radiologic or pathologic evidence of malignant involvement of the ipsilateral psoas major muscle [21].

A special issue of chronic pelvic pain refers to the so-called frozen pelvis syndrome. This clinical condition is the most extensive form of advanced endometriosis, in which fibrotic nodules and deeply infiltrative endometriosis replace pelvic soft tissues with high-density fibrosis. Consequently, a frozen pelvis causes pain and discomfort due to the nature of the adhesions pulling on other organs. Usual functions such as a bowel movement, emptying the bladder, menstruation, and sex are extremely painful due to the restrictive nature of scarring and altered anatomy. Bowel obstruction, hydronephrosis, hydroureter, bladder dysfunction, and involvement of pelvic nerves are frequently due to partial or incomplete frozen pelvis. Although endometriosis is the main cause, other extensive pelvic disease lead to a frozen pelvis, including infection [22], surgery, benign growths, RT, and malignant growths. Among the cancer diseases, locally advanced neoplastic forms of rectal cancers and recurrence are common causes of frozen pelvis [7]. Malignant growths of the adnexa, such as ovarian carcinoma, may involve an extensive adhesive disease and fibrosis of the reproductive organs and adjacent structures. In contrast, carcinomas of the endometrium and cervix generally do not present with a frozen pelvis.

Symptoms of frozen pelvis depend on the different degrees of pelvic organ involvement and may include painful intercourse or pain associated with sexual activity, severe menstrual cramps, pelvic pain apart from menses, painful bowel movements, bloating, constipation, painful, and frequent urination. Additionally, the involvement of pelvic nerve structures can lead to intractable neuropathic pain.



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