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Biliary tract cancer metastases in port site after laparoscopic cholecystectomy – a case report

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Gall bladder and biliary tract tumors that are considered very rare, but are becoming more frequent in everyday practice. The progress in the area of imaging techniques over the 1990's had a strong impact on the diagnostics and detection of these illnesses. Neoplasms of the biliary tract consist, mainly, of non-malignant adenomas and papillomas and are often situated in the ampullary area. Biliary tract cancer is the cause of death in some 3% of cases in the USA. The ethiology of this cancer is not exactly known and is still a matter of research. It is the most common between the age of 60 and 90. The bile tract tumor usually grows slowly and silently, sometimes as a papilloma-like polyp with extremely slow course and better prognosis. Clinical signs depend on the direction of spread. Unfortunately, localization in the vicinity of important anatomic structures, for instance the portal vein and the hepatic artery renders radical resection practically impossible. The size of the tumor usually doesn't exceed 1 cm in diameter, and therefore it can be often missed during standard open cholecystectomy. In the reported case, a 79-year old woman, we observed biliary tract cancer metastases within the laparoscopic port-sites 3 months after laparoscopic cholecystectomy. The metastases were found within the abdominal wall. The patient underwent another surgical procedure during which the port-site tumors were totally resected. After one year of follow up we found new metastases to the port-sites. The patient died 27 months after laparoscopic cholecystectomy.

Key words: biliary tract cancer, laparoscopy, port-site metastasis

Malignancies of the gall bladder and the biliary ducts have been considered very rare, but recently are becoming a more common diagnosis in everyday practice. The development of imaging diagnostics during the 1990's has significantly improved both the diagnostics and the early recognition of these tumours. Neoplasms of the gall bladder usually take the form of cholesterol polyps, adenomas and carcinomas being morerare, although the latter are considered to be the most common malignancies of the alimentary tract. In Europe cancer of the gall bladder is recognized in less than 1% of patients operated on for cholelithiasis [1]. In the US cancer of the gall bladder is estimated to be the reason of some 70 000 deaths *per annum*. Cholelithiasis coexists with some 75% of cancer cases [2].

Neoplasms of the biliary tract consist, predominantly, of nonmalignant adenomas (usually epithelial) and papillomas, usually located in the vicinity of the greater papilla of the duodenum. Cancer of the biliary tract is the cause of some 3% of deaths in the US. The etiology of this entity is not clear and remains a matter of research. Statistically this malignancy is more common among elder patients, between the 6th and the 9th decade of life [3]. Cancerous lesions of the biliary tract cancer are commonly located in the direct vicinity of the duodenum and may be mistaken for cancer of the greater papilla or for *carcinoma capitis pancreatis*. The most common localisation of primary cancers of the biliary tract is the common hepatic tract. Their size seldom exceeds 1 cm and therefore they may be easily overlooked during standard cholecystectomy, whether classic or laparoscopic [2, 4, 5].

On microscopic examination malignant tumours of the biliary tract are usually adenocarcinomas, epithelial forms being more rare. Pathologically the entire tumour consists of a few foci, in which the cancerous cells are localized, while the remaining parts of the tumour consist of connective and fibrous tissue [2]. Therefore it is very important to remember that fine needle aspiration biopsy performed under ultrasonographic control may provide unclear or even negative results.

Case report

A 79-year old woman, had been admitted to the Department of General Surgery of the Hospital of the Ministry of Internal Affairs and Administration (MSWiA Hospital) in Łódź on June 12th, 2000 in order to undergo elective cholecystectomy. On June 13th she underwent laparoscopic cholecystectomy due to chronic inflammation of the gall bladder. The indication for surgery was

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clinically relevant cholelithiasis confirmed periodically by abdominal ultrasound over the period of the last 6 years. Over that period the patient had experienced a number of strong attacks of colic pain. Intraoperatively we found an elongated, adipous gall bladderimmersed into the liver. The external billiary tracts were nor distended. Concomittant diseases included ankylosing inflammation and bilateral cataract. Before surgery the patient had been on a lengthy medication with non-steroid anti-inflammatory drugs and Vitreolent eye drops. Biochemical analysis before surgery revealed RBC 4.62; Hgb 13.4; Hct 39.8; WBC 6500; bilirubin 1.14 mg% (normal range to 1.2%). Postoperative recovery was uneventful, with wound healing by first intention. The patient was discharged on the 2nd day after surgery, i.e. on June 16th 2000. Pathological analysis of the specimen provided the diagnosis of *cholecystitis calculosa chronica*. The ambulatory postoperative follow-up visit 2 weeks after surgery was also uneventful, and the patient's general condition was found to be adequate to her age.

A year after surgery the patient showed up for examination. Her anxiety was caused by the presence of two tumours on the abdominal wall. The patient underwent ambulatory diagnostics. On physical examination we found one tumour 35 mm in diameter in the vicinity of the navel and the other, 25 mm in diameter, at the level of the navel located on the frontal axillary line on the right hand side. The tumours were easily palpable through the skin. On October 2nd 2001 we performed a control ultrasound examination of the abdominal cavity using a C 3.75 probe; within the areas of the two palpable lesions we found hypoechogenic highly absorbent, indistinct lesions 22 mm and 16 mm in diameter, with significant blurring of the structure of the surrounding tissues. Both the lesions were located in the subcutaneous tissue and did not surpass the fascia, with normal hepatic structure. Initially the patient reported no pain, complaining only of a feeling of pressure and cosmetic discomfort. Over a period of 5 weeks the patient developed pain in the right subcostal region and around the navel with nausea and vertigo. We performed aspirational fine needle biopsy and diagnosed low-differentiated metastatic tumours, probably originating from cells of the gall bladder and/or of the reproductive organs. Due to the lack of a precise pathological diagnosis and the constant pain accompanied by nausea and vertigo the patient was re-admitted to the Department of General Surgery of the MSWiA Hospital in Łódź on November 11th 2001 for elective local excision of the tumours. Additional examinations performed during hospitalization included chest X-ray, with no sign of metastases or hyperplasia and, due to the results of the biopsy, the patient also underwent gynecological examination, during which a grade II/III lowering of the uterus was recognized and gynecological malignancies were excluded. Transvaginal ultrasound revealed involution of the reproductive organs with no signs of pathology, except for marginal calcifications within the uterine wall and a 4 mm layer of fluid in the cavum of the uterus. Concomitant diseases included, apart from those reported in the previous year, arterial hypertension and ischaemic heart disease. Biochemical analyses revealed RBC 4.96; Hgb 13.9; Hct 42.6; WBC 6200 and normal bilirubin level. On consulting her doctor the patient decided to have the lesions removed surgically.

The patient was operated on November 14th 2001. Intraoperatively we found a periumbilical tumour infiltrating the skin, the fascia, the muscle layer and the peritoneum and another tumour in the right upper part of the abdomen infiltrating the tissues above the peritoneum, but not the peritoneum itself. The entire abdominal cavity was examined, the liver was found to be cicatrized, as in cirrhosis, while the other organs of the abdomen were normal macroscopically and on palpation. The tumours were resected within healthy tissue margins, i.e. the periumbilicular tumour was excised with the surrounding normal skin, subcutaneous tissue, the fascia and the peritoneum and the lateral tumour – together with healthy skin and subcutaneous tissue to the fascia. Pathological analysis of the excised tumours revealed *Adenocarcinoma tubulare G1 cholangiocellulare*. The excision of the lateral tumour from the right upper abdomen was microscopically incomplete.

During the postoperative period the wound above the navel became purulent on day 4. Culture revealed a Staphylococcus epidermidis infection. Antibiogram-based therapy was administered. Due to the poor general status of the patients and the fact that she was incapable of performing wound dressings at home she remained hospitalized. The wound healed by granulation and the patient was discharged after 43 days of hospitalization, i.e. on day 37 after surgery (December 21st 2001).

Postoperative follow-up recommended abdominal ultrasound every 3 months and analgesics according to choice. In one of the control ultrasound examinations performed in September 2002 (10 months after surgery) a hypoechogenic mass, unclearly delineated from the surrounding tissues was recognized within the scar in the median line. The mass crossed the transverse abdominal fascia, but the liver was still unchanged. The patient withheld consent regarding further excision of metastases. She was in good overall condition taking only non-steroid anti-inflammatory drugs for pain control. Beginning with July 2003 the patient began to lose weight, still withholding consent regarding the excision of metastases. She died at home on September 2nd 2003 due to unknown causes. The family specifically asked for the autopsy not to be performed.

Discussion

Cancer of the biliary tract is a malignancy originating from adenomatous tissue, extremely rarely recognized by surgeons. Such a diagnosis is more common on the part of the pathologist, when performing an autopsy of a patient who had died due to other causes [3].

A fast and accurate diagnosis of biliary tract cancer is not easy. Its localization makes it problematic not only to

the general doctor but even to the most experienced specialist in diagnostics. A rare case is Klatskin's tumour, which is localized at the place of the dichotomy of the common bile duct. It is characterized by slow growth and may take the form of a polypous papilloma with a mild course and better prognosis. Cancer infiltrating only the left bile ducct is more difficult to recognize, as the progress of the disease may be painless and without jaundice. If the tumour is localized within the right bile duct the chances of correct diagnosis increase. However, it must be always kept in mind, that tumour localization in the direct vicinity of important anatomical structures, such as the portal vein or the hepatic artery may not allow to perform radical surgery [4]. Macroscopic diagnosis is unclear even during classical cholecystectomy.

Usually the correct diagnosis is made on pathological examination of the postoperative specimen. However, if we suspect a malignancy in the course of laparoscopic cholecystectomy we suggest, as do other authors, the following course of action: in case of a Tis or T1 tumour (usually macroscopically negligible) laparoscopic cholecystectomy may be considered adequate, while in the case of T2 and T3 tumours the patient should be re-operated with resection of the parenchyma of the hepatic hilus and lymphadenectomy [1]. One should not overlook adjuvant therapy. Literature reports increasingly often mention adjuvant radiotherapy (in stages T2-4) and palliative radiotherapy in stage IV [6].

The principles of the use of low-invasive laparoscopic techniques for oncological surgery are being questioned [7]. On the one hand one must consider the oncological radicality of the resection, and on the other the fact that it is a minimally invasive procedure. The presence of metastases within the abdominal wall, in the places where the troakars had been placed is as common a complication as the presence of metastases within the sites of troakar placement on the chest wall after thoracovideaoscopic procedures. Another issue in present-day videosurgery is CO_2 leakage. Tseng of Rotterdam had performed an experiment based upon the introduction of cancer cells into port sites. Its results show that CO_2 leakage around the traokars significantly increases the likelihood of metastatic implantation of cancerous cells within intraportal tissue [8]. In order to decrease this likelihood a team of surgeons from Hong Kong has introduced the concept of a laparoscopic procedure from 2 ports. Their results appear promising due to a significant diminishing, or practically a total lack, of postoperative pain [9].

In the case of our patient the initial laparoscopic procedure was performed electively, with the use of 3 troakars, due to clinically evident cholelithiasis in June 2000. The presence of metastases to the abdominal wall was already discerned clinically 12 months after surgery. Excision of the lesions, apparently macroscopically complete, *en block* within healthy tissue margins did not ensure the desired effect. After another 10 months the patient observed recurrence of the disease within the same sites. This points to the slow growth of metastases of cancer of the biliary tract. We should, however, pose one question – what if classical cholecystectomy had been performed? Other authors battle with similar queries [4, 7, 10]. And, as is the case with us, no one can provide the right answer as to "Where are we at the beginning of the 21st century?"

Other reports confirm the relatively low incidence (0.6-1.2%) of concomitant gall bladder cancer and biliary tract cancer in the overall number of patients treated surgically for cholelithiasis [1, 2-4]. The case report which we have presented supports such experiences and points to the necessity of integrated specialistic treatment, including specialists in internal medicine, diagnostics, surgery and pathology. Accurate and careful preoperative diagnosis may allow the surgeon to make correct decisions and assure a satisfactory treatment outcome.

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