The study presented two cases of synchronous occurrence of colon and appendiceal adenocarcinoma. Both patients required surgical intervention, due to acute peritonitis during the course of acute appendicitis. In case of one patient we performed abdominal CT confirming the presence of sigmoid cancer. The patient was subjected to appendectomy and Hartmann’s operation. The second patient underwent an appendectomy, and colonoscopy performed two months later revealed the presence of rectal adenocarcinoma. The patient was subjected to low anterior rectal resection. The histopathological results considering both patients revealed the presence of synchronous colon and appendiceal adenocarcinoma.

**Key words:** appendiceal cancer, synchronous tumors, colon cancer

Primary appendiceal adenocarcinomas are rarely diagnosed constituting < 6% of appendiceal neoplastic lesions, and < 0.5% of all gastrointestinal neoplastic lesions (1, 2). Beger was the first to describe a case of appendiceal adenocarcinoma in 1882. The most common neoplastic lesions of the appendix include carcinoid tumors, cystic adenocarcinoma, and adenocarcinomas. Carcinoid tumors of the appendix are diagnosed ten times more often than adenocarcinomas (3). Diagnostics of appendiceal lesions is extremely difficult, since most patients arrive to the ER with symptoms of acute appendicitis, and final diagnosis is established on the basis of the histopathological examination of the excised appendix (4, 5). In very few patients (<30%) one may observe gastrointestinal occlusion, loss of body weight, anemia, and unspecific abdominal pain. The physical examination in case of patients without acute appendicitis might reveal the presence of a tumor located in the right iliac fossa. However, only in selected cases is elective surgery performed, after previous endoscopic confirmation (6, 7).

The histopathological classification of appendiceal adenocarcinoma distinguishes the intestinal type and the mucogenic type, which is characterized by a more favorable prognosis. In case of the mucogenic adenocarcinoma one may observe rupture to the peritoneum and occurrence of peritoneal pseudomyxoma (8).

Imaging examinations in the diagnostics of appendiceal adenocarcinoma are not very useful, since they do not allow the differentiation of cecal adenocarcinoma from acute appendicitis. Treatment of appendiceal adenocarcinoma mainly consists in surgery, and depending on the stage of the disease and location of the appendix includes appendectomy with or without right-sided hemicolecction (9, 10). In selected cases treatment is complemented by adjuvant chemotherapy and radiotherapy.

The problem of multiple neoplastic lesions has been present in medicine for over a hundred years. Billroth was the first who defined the problem, followed by Warren and Gates (11), providing grounds for the current definition and diagnostic criteria of multiple neoplastic lesions, established by the International Agency for Research on Cancer (12). Synchronous tumors are distinguished when the time elapsed between the diagnosis of two neoplastic lesions is less than 6 months, while
that of metachronous tumors when the period exceeds 6 months. Despite the enormous progress in abdominal imaging techniques, both radiological and endoscopic, the diagnosis of synchronous colon tumors is extremely rare. This is associated with the frequency of occurrence, which for synchronous colon cancer ranges between 0.6-1.4%, while in case of metachronous lesions, between 1-8% (13). Usually, during surgery performed because of a neoplastic lesion, the surgeon identifies the existence of a second gastrointestinal tumor. Such a situation requires a change in the management strategy and extends the duration of the operation, increasing the risk of complications. In case of a synchronous tumor, both lesions should be excised. In case of emergency surgery, thorough evaluation of the remaining part of the colon is required, including intraoperative colonoscopy in doubtful cases. Postoperative colonoscopy is also acceptable, in order to evaluate the remaining part of the colon.

However, synchronous occurrence of appendiceal and colon adenocarcinoma is extremely rare, being diagnosed in less than 1% of all synchronous tumors (14). In our study, we presented two patients diagnosed with synchronous appendiceal and colon adenocarcinoma.

CASE REPORT

During the period between 2006 – 2012, 327 colon resections were performed, due to neoplastic lesions at the Department of General Surgery, Specialistic Hospital in Grodzisk Mazowiecki. In 2012, 79 appendectomies were performed.

Two patients were diagnosed with synchronous appendiceal and colorectal adenocarcinoma. Table 1 presented the characteristics of the operated patients.

Both patients underwent emergency surgery, due to acute appendicitis. Laboratory results of both patients performed before the operation showed leucocytosis. The physical examination showed peritoneal irritation located in the right iliac fossa with muscular defense.

In case of the first patient (J. F- history number 15377/2012), the inconclusive medical history (periodic bloating and hypogastric pain) prompted the Authors to perform emergency abdominal CT, which revealed the presence a sigmoid tumor, thickening of the appendix wall, and suspicion of metastatic lesions in the liver. The patient underwent appendectomy and Hartmann’s operation. Lymph nodes and the liver were free of neoplastic lesions (preoperative abdominal CT did not confirm the presence of focal lesions). The exploration of abdominal cavity lesions showed no other pathologies. The postoperative course was complicated by heart failure, paroxysmal AF, and wound evertation requiring suturing. Further postoperative course was uneventful. Upon improvement of the patients’ general condition he was referred to the outpatients oncological clinic for adjuvant treatment.

The histopathological result (nr-100451484) of the removed colon revealed the presence of colorectal adenocarcinoma (G2T3N0) and appendiceal adenocarcinoma. The sample showed 7 lymph nodes without metastatic lesions.

The second patient (R.K- history number 5319/2012) underwent emergency surgery, due to symptoms of acute appendicitis, in whom preoperative ultrasonography confirmed the initial diagnosis. During surgery the gangrenous appendix was removed. The remaining

<table>
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<th>Sex</th>
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<th>Cause of operation</th>
<th>Risk factors</th>
<th>Location of the synchronous tumor</th>
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<td>M</td>
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<td>COPD</td>
<td>rectum</td>
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abdominal cavity organs were within normal limits. Lymph node and liver metastatic lesions were not observed. The histopathological result (nr 100451484) confirmed the presence of appendiceal adenocarcinoma, which was completely excised. In order to expand diagnostics, colonoscopy and abdominal CT were performed two months after the operation demonstrating the presence of rectal adenocarcinoma. The patient underwent low anterior rectal resection. The histopathological result (nr 100451484) confirmed the presence of colorectal adenocarcinoma – G2T3N0. The postoperative course was uneventful. The patient was referred for adjuvant treatment (Outpatient Oncology), remaining to this day under their control.

**DISCUSSION**

The synchronous occurrence of appendiceal and colorectal adenocarcinoma is very rare. However, in case of an unclear picture of the appendix the surgeon should consider the possibility of the above-mentioned. Preoperative diagnostics is extremely difficult, due to the unspecific symptoms, and fact that more than 70% of patients’ with appendiceal adenocarcinoma present with clinical and biochemical symptoms of acute appendicitis. In case of our patients acute appendicitis symptoms predominated. Considering imaging diagnostics of appendiceal adenocarcinoma abdominal ultrasound and CT examinations are used. However, due to significant inflammation and presence of an abscess in case of appendiceal perforation, differentiation between neoplastic disease and inflammatory process is extremely difficult. In case of patients operated in our department imaging examinations showed no signs of appendiceal adenocarcinoma. In case of patient J.F in whom preoperative abdominal CT was performed, the examination revealed the presence of acute appendicitis signs, as well as sigmoid tumor. In case of the second patient preoperative abdominal ultrasonography showed lesions characteristic of acute appendicitis. It is often difficult to differentiate, even intraoperatively, between acute appendicitis and appendiceal adenocarcinoma. In case of mucogenic appendiceal adenocarcinoma the presence of a peritoneal pseudomyxoma might be helpful in establishing the diagnosis. In both of our cases gangrenous appendicitis was diagnosed, intraoperatively. Due to significant inflammatory lesions it was impossible to differentiate between inflammatory and neoplastic disease. In both cases, the clinical picture did not pose any doubts requiring consideration, whether to perform right-sided hemicolectomy. Due to the possibility of synchronous tumors after histopathological confirmation of appendiceal adenocarcinoma, it is necessary to complement diagnostics by endoscopy or abdominal CT. In case of our patients CT was performed, before surgery and after histopathological confirmation. In both patients synchronous tumors were diagnosed: sigmoid and rectal adenocarcinomas. The synchronous tumors were surgically excised in both cases. Due to patient age, concomitant diseases, and lack of local and distant metastases, right-sided hemicolectomy was not performed. Both patients were referred for oncological adjuvant treatment.

Based on the presented clinical material, one may come to the conclusion that in case of an unclear picture of acute appendicitis, one should consider the possibility of appendiceal adenocarcinoma. However, in the presence of colorectal adenocarcinoma and acute appendicitis symptoms, one should consider synchronous presence of appendiceal adenocarcinoma.
REFERENCES


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