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Synchronous primary esophageal and gastric cancers

The development of more sophisticated invasive and non-invasive diagnostic tools has made it possible to detect cancer at an early stage. Furthermore, it has contributed to the detection of synchronous occult tumors which were formerly overlooked. Cases of multiple primary cancers raise questions about underlying environmental factors or host susceptibility factors (8).

The multiple cancer cases have recently been increasing in number. Multiple primary neoplasms in the same individual are experienced more frequently as advances in cancer treatment prolong life. Improved survival rates for patients with neoplastic disease, largely due to early diagnosis, allow more patients to survive long enough to develop subsequent primary tumors (8).

A true increase in the occurrence of additional carcinoma from an unknown cause is strongly suspected (8).

The reported incidence ranges from 2% to 13% (3, 9). They appear more frequently in the upper digestive tract, respiratory system, head and neck region or urogenital system (3).

Multiple primary cancers are observed more frequently among male patients. In many cases a one-stage operation to excise both malignant tumors at the same time is often possible and in many cases is not difficult (3).

MATERIAL AND METHODS

Four cases of synchronous esophageal and gastric cancers were diagnosed in 2nd Department of Radiology, Medical University of Lublin and in Radiological Department of Hospital in Krosno between 1996 and 2002. In all cases double-contrast barium examinations of upper gastrointestinal tract were performed. In two cases additional CT examination was performed. Endoscopy with taking the specimens for histopathological examinations was performed in each patient.

RESULTS

In all cases the two lesions were found, separated by normal mucous. In two cases the irregular tumor masses were localized in the gastric cardia. In two patient coexistent lesions form the oval filling defect, with hazy appearance in the middle of the anterior esophageal wall (Fig. 1a,b). In three cases the results of contrast examinations were confirmed with CT (Fig. 2). Endoscopy with taking the specimens for histopathological examination supplemented the radiological examination (Fig. 3). The results of histopathological examinations confirmed the diagnosis.



Fig. 1 a, b. Narrowing of the cardiac part with irregular margins (double arrows). Coexistent filling defect in the middle of the esophagus with haziness of the anterior wall (single arrow)



Fig. 2. Axial CT section. The contrast agent surrounds the oval mass narrowing the esophagus



Fig. 3. Endoscopy. The tumor bulging towards the lumen of the esophagus

DISCUSSION

The possibility of multiple primary cancers should be kept in mind during the preoperative examination (9). The overall results in patients with multiple cancers are unsatisfactory, mostly due to delayed diagnosis (3).

Multiple primary cell carcinomas are classified as synchronous or metachronous. Synchronous carcinomas are those diagnosed at the same time or within 6-month period after diagnosis of the initial cancer. Metachronous carcinomas are secondary cancers that develop 6 months after the diagnosis of the primary cancer, usually after treatment of the primary lesion. The histological criteria for diagnosing multiple separate primary squamous carcinomas are as follows: 1) neoplasms must be clearly malignant as determined by histological evaluation; 2) each neoplasm must be geographically separated and distinct; the lesions should be separated by normal-appearing mucosa; 3) the possibility that the secondary neoplasm represents a metastasis should be excluded (4).

Multiple primary malignancies develop in functionally and anatomically allied organs, and environmental factors are thought to play a major role in carcinogenesis. Carcinogenesis in different organs subjected to the same carcinogens and promoting factors has led to the concept of a multicentric pathogenic process termed 'field cancerization' (8).

Primary carcinomas of esophagus account for approximately 7% of all gastrointestinal malignancies, including adenocarcinoma and squamous cell carcinoma. Barium swallow is often the initial radiographic procedure, and still remains a sensitive test. A stricture is the most common presentation (1).

Squamous cell carcinoma of the esophagus is occasionally associated with malignancies of other organs, such as head and neck, the upper respiratory tract and the rest of alimentary tract (4, 5, 8).

Although the reason for the high frequency of additional malignancies in esophageal cancer patients is yet to be identified, the most convincing hypothesis is the field cancerization theory. Esophageal and gastric cancer share some putative risk factors, including diet, low socioeconomic status, age, alcohol and tobacco use, although association between the two cancers is rare, especially when histopathological types differ (2, 8).

Carcinogens affecting the esophagus also affect the entire respiratory and upper digestive tracts. Alcohol and tobacco consumption are the most common risk factors in patients with esophageal carcinoma. These are also known as crucial environmental risk factors for multiple cancers of the upper aero-digestive tract. Synchronous cancers of the stomach and hypopharynx develop significantly more frequently in heavy smokers (8).

Panendoscopy is recommended on all patients with a carcinoma of the aero-digestive tract to diagnose simultaneous or synchronous primary tumors based on the field cancerization theory (8).

For screening and surveillance for synchronous second primary cancer, endoscopy and CT scanning may be used. These techniques are already indispensable for histological diagnosis and accurate staging at the time of initiating treatment for esophageal cancer. During esophagogastrosocopy, the stomach is inspected for availability for reconstruction after esophagectomy and detection of coincident occult gastric tumor. The major role of CT scanning in staging of esophageal cancer is to identify lung and liver metastasis. Furthermore, it plays a useful role for screening for second primary tumors in the lung and liver (8).

There is the need for adequate evaluation of the stomach in esophageal neoplasm and the need for the right therapeutic choice (2, 8).

In the diagnosis and treatment of esophageal cancer, it is necessary to check for synchronous tumors of the stomach. The rate of synchronous association with gastric cancer was reported to be 1.6% in esophageal cancer patients. After the reconstruction of the alimentary tract using a gastric tube, gastric tumors undetected before surgery may grow and influence the clinical course of these patients. Because about 90% of gastric tumors associated with the esophageal cancer were located at the upper or the middle part of the stomach, these sites must be carefully examined by endoscopy. There is diagnostic issue regarding gastric tumors associated with esophageal cancer when endoscope cannot be passed through the esophagus before surgery. Considering the use of the stomach for the reconstruction after esophagectomy, the stomach should be carefully examined in a barium meal study. However, during the operation the stomach should be examined by serosal inspection or palpation (5, 6, 7).

CONCLUSIONS

The multiple cancer cases have recently been increasing in number. The frequency of synchronous esophageal and gastric carcinomas is increasing, due to development of more sophisticated invasive and non-invasive diagnostic tools and an increase in the number of elderly patients. The possibility of multiple primary cancers should be kept in mind during the preoperative examination. In case of esophageal cancer with severe stricture, when endoscope cannot be passed through the esophagus, the stomach should be carefully examined in a barium meal study.

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SUMMARY

The diagnosed multiple cancer cases have recently been increasing in number. The frequency of synchronous esophageal and gastric carcinomas is increasing due to development of more sophisticated invasive and non-invasive diagnostic tools and an increase in the number of elderly patients. Four cases of synchronous esophageal and gastric cancers were diagnosed in 2nd Department of Radiology, Medical University of Lublin and in Radiological Department of Hospital in Krosno between the 1996 and 2002. In all cases double-contrast barium examinations of upper gastrointestinal tract were performed. In all cases the two lesions were found, separated by normal mucous membrane. In two cases the irregular tumor masses were localized in the gastric cardia. In two patients coexistent lesions form the oval filling defect, with hazy appearance in the middle of the anterior esophageal wall. In three cases the results of contrast examinations were confirmed with CT. Endoscopy with taking the specimens for histopathological examination supplemented the radiological examination. The results of histopathological examinations confirmed the diagnosis. The possibility of multiple primary cancers should be kept in mind during the preoperative examination. In case of esophageal cancer with severe stricture, when endoscope cannot be passed through the esophagus, the stomach should be carefully examined in a barium meal study.

Synchroniczny pierwotny rak przełyku i żołądka

Częstość rozpoznanych mnogich pierwotnych raków wzrasta. Dotyczy to również synchronicznych raków żołądka u pacjentów z rakiem przełyku. Jest to wynikiem rozwoju technik diagnostycznych i wzrostu liczby starszych pacjentów. W latach 1996–2002 rozpoznano cztery przypadki synchronicznego raka przełyku i żołądka w II Zakładzie Radiologii Lekarskiej AM w Lublinie oraz w Zakładzie Radiologii Szpitala w Krośnie. U wszystkich pacjentów wykonano skopię górnego odcinka przewodu pokarmowego. We wszystkich przypadkach stwierdzono dwie zmiany, oddzielone przez prawidłową błonę śluzową. W dwu przypadkach nieregularne masy guza obejmowały część wpustową. U dwóch pacjenta współistniejące zmiany tworzyły owalny ubytek wypełnienia z zamazaniem przedniego zarysu ściany przełyku w części środkowej. W trzech przypadkach wyniki badania kontrastowego były potwierdzone badaniem TK. Badanie endoskopowe z pobraniem wycinków uzupełniało diagnostykę radiologiczną. Wyniki badania histopatologicznego potwierdziły rozpoznanie. Należy mieć na uwadze możliwość mnogich pierwotnych raków podczas badania przedoperacyjnego. W przypadku raka przełyku ze znacznym przewężeniem, gdy endoskop nie może przedostać się przez przełyk, żołądek musi być dokładnie oceniony w badaniu kontrastowym.