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Symptom management supported by photodynamic therapy in case of dysphagia due to breast cancer gastric metastasis

Abstract

Breast cancer in its advanced form constitutes a malignant neoplasm often causing metastases to distant organs — especially bones, lungs and brain. Diagnostic studies rarely refer to untypical locations, which — especially after a radical treatment of the basic illness — may lead to erroneous diagnoses, which in turn may expose the patient to an ineffective and dangerous treatment. This study presents a case of a patient radically treated due to the left breast cancer who after the period of two years exhibited symptoms of increasing dysphagia. At first a gastric lymphoma was diagnosed, deriving from the lymphocytes B, or an anaplastic gastric cancer. A bad general condition of the patient did not allow to introduce chemotherapy, the patient was subject to a photodynamic endoscopic therapy six times, obtaining a complete symptom relief liquidation and an improvement of the general condition. The progress of the neoplastic disease observed during the symptom treatment in the palliative care consulting centre and hospitalization allowed to diagnose a gastric metastasis of the breast cancer.

Key words: breast cancer, gastric metastasis, photodynamic therapy

Introduction

In spite of noticeable progress in the field of diagnosing and treating breast cancer with the use of neoadjuvant radio- and chemotherapy, new surgical techniques and neoadjuvant radiotherapy, it still wreaks havoc with the population of middle-aged women, and their age has a tendency to decrease. It is also a neoplasm often causing metastases to distant organs — especially bones, lungs and brain. However, there also happen untypical locations which may

lead to erroneous diagnoses, and consequently to inappropriate treatment. This study presents a case of a patient radically treated due to the left breast cancer who after the period of two years exhibited symptoms of increasing dysphagia. On the basis of an endoscopic examination and the histopathologic examination result, the preliminary diagnosis suggested a gastric lymphoma deriving from the lymphocytes B or a neoplasm of an anaplastic cancer type.

However, due to the patient's bad general condition chemotherapy was not recommended, but ad-

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vanced dysphagia required the application of a palliative procedure. During one year six events of an endoscopic photodynamic therapy were performed, each time obtaining the dysphagia liquidation and a temporary improvement of the general condition, manifesting in gaining weight. During the last but one procedure, on the basis of the previous course of the disease, metastases in the liver, bones, a final diagnosis was formulated — a gastric metastasis of the breast cancer.

Case study

A patient, aged 52, was admitted to the Palliative Care Consulting Centre in January 2006 due to increasing dysphagia resulting in the impossibility to swallow solid and semi-liquid food and periodically appearing vomiting after semi-liquid food. Two years before the patient had been subject to a radical treatment of the left breast cancer, which comprised the neoadjuvant chemotherapy, and subsequently mastectomy and radiotherapy. Due to the fact that metastasis foci in the subcutaneous tissue of the head, groin and the left lower limb had been discovered then, these changes had been removed in full. Due to the symptoms intensification in the upper section of the alimentary tract and a focal change described in the CT of the abdominal cavity, arousing suspicions of the neoplastic metastasis, the patient was directed to the Clinic of Internal Diseases, Angiology and Physical Medicine in Bytom in order to be subject to further endoscopic diagnostics. In February 2006 the patient was hospitalized for the first time. The endoscopic examination performed then allowed to diagnose a proliferative gastric disease; however the result of the histopathologic test was ambiguous. At first the diagnosis described a neoplasm deriving from neuroendocrine cells, and subsequently, after the immunohistochemical verification, the diagnosis was changed, suggesting lymphoma deriving from the lymphocytes B or an anaplastic cancer. Due to the general condition of the patient and the results of oncologic consultations qualifying the patient only to symptomatic proceedings, the photodynamic therapy was commenced. In February 2006 the first session was performed, leading to the elimination of dysphagia and improvement of the patient's general condition. The next sessions took place in April, June, August 2006 and in August and October 2007. Between the hospitalization periods the patient was under the care of the Palliative Care Consulting Centre.

The symptoms from the upper section of the alimentary tract were efficiently controlled, which

— together with the endoscopic treatment — significantly improved the patient's quality of life. The symptomatic treatment comprised the application of prokinetic drugs (metoclopramide), influencing the upper section of the alimentary tract, glucocorticoids (dexamethasone), aiming at a decrease of the seeming size of the tumour by the elimination of the inflammation areola, and — finally — the megestrol acetate hindering the consequences of the anorexia-cachexia syndrome. In August 2006, during another hospitalization in the clinic, the presence of minor quantities of free fluid in the peritoneum cavity was confirmed and the patient's complaints allowed to diagnose bone metastases. In August 2007 the quantities of fluids in the peritoneum cavity were significant; however, introducing diuretic drugs to the pharmacotherapy allowed to resign from the decompression puncture. During the last session of the photodynamic therapy, due to the dynamics of the disease course and its clinical image — metastases to the liver, free fluid in the peritoneum cavity, the presence of fluid in the right pleura cavity, as well as bone pains, the previous diagnosis was revised and the gastric metastasis of the breast cancer was diagnosed.

Every single photodynamic session was successful as dysphagia was completely eliminated, the body weight significantly increased and the patient's quality of life was improved.

The patient was subject to the total of six photodynamic sessions with a good result. Then symptomatic proceedings were conducted in the Palliative Care Consulting Centre, consisting in amelioration of bone pains relating to the bones of the skull integument, ribs and lower limbs, pharmacotherapy of the abdominal dropsy and the cancerous cachexia syndrome, as well as the application of prokinetic drugs. An average remission period of dysphagia and vomiting was two months in case of the first four sessions. Next, the patient did not require photodynamic therapy for the period of 12 months, the next two sessions took place in one-month-long intervals.

At present the patient is still under the care of the consulting centre referred to above.

Discussion

Both the primary neoplasms and metastases located in the upper section of the alimentary tract may be a reason for the occurrence of increasing ailments such as dysphagia, odynophagia or even vomiting leading to the patient's cachexia and de-

hydration. It is extremely important as often a dramatic deterioration in the patient's condition is not caused by the progress of the neoplastic disease, but by an unfortunate location of the tumour, causing food passage disorders. Restoring the patency of the alimentary tract may lead to a similarly quick improvement in the patient's condition, and consequently to the improvement of the quality of the patient's life, and finally even to its prolongation. The stricture of the inside diameter of the oesophagus or stomach may be caused by an external pressure by a neoplastic exudates or by enlarged lymph nodes of the mediastinum [1]. Also an inflammation of the mucous membrane in the oesophagus or stomach deriving from a mycotic, bacterial infection or of the radiation nature may be significant in the symptoms development. Finally, the inflammatory infiltration around the neoplastic tumour may be a reason for the fact that its actual dimensions are a sum of the size of the neoplasm mass and the inflammatory oedema which surrounds it [2].

First of all the symptomatic treatment should be based on the pharmacotherapy of dysphagia basing on the available prokinetic drugs (metoclopramide) and anti-inflammatory drugs (dexamethasone). It must be remembered that in some cases metoclopramide may cause a reflexive contraction of the superior sphincter of the oesophagus, increasing the dysphagia [2]. We cannot forget about treating the infection with the use of antibacterial and antimycotic drugs, or acting locally and reducing inflammation (1% solution of the hydrogen peroxide, benzylamine, anti-inflammatory herbal mixtures). Bearing in mind frequent radiation damages of the nature of the salivary glands dysfunction, it is necessary to apply locally preparations replacing the natural saliva. Finally, it is also crucial to apply — whenever it is not contraindicated — the megestrol acetate which counteracts the occurrence of the neoplastic cachexia, which is the reason for the anorexia — cachexia syndrome.

We must not forget about apparently obvious frequency, composition and form of meals. The diet must be rich in protein and oligoresidual.

Meals should be liquidized, served often in small portions.

Unfortunately, in cases where the ailments relating to the neoplastic disease are caused by the tumour expansion to the internal diameter of the stomach or oesophagus, causing clogging it up, and — even more often — peristalsis disorders not reacting to pharmacotherapy, it becomes necessary

to introduce more invasive procedures. Until recently the only methods of restoring the passage in the upper section of the alimentary tract have been gastrostomies and nutritive jejunostomies.

At first they were performed during surgical procedures in the conditions of an operating theatre, now, thanks to the development of the endoscopic technology, it is possible to perform a percutaneous endoscopic gastrostomy (PEG). Unfortunately, in some cases even this method is not possible to be performed, which is connected with a critical stricture of the alimentary tract internal diameter, not allowing an instrument to pass.

Sensible alternatives are constituted by the tumour evaporation with the use of the YAG laser, prosthesis of the oesophagus, or the photodynamic therapy. Especially the last mentioned method seems to be very promising, mainly due to the possibility of its frequent repetitions and a smaller risk — than in the laser ablation — of complications in a form of bleeding or perforations, as well as in the cases where it is impossible to introduce self-expandable prostheses — in the area of the cardia or in the next sections of the stomach.

The principle of the last mentioned method is destroying neoplastic cells with laser light of a determined wavelength after gathering protoporphyrin in their mitochondria, applied before, constituting a photosensitizing agent [3]. Usually the session of the laser irradiation is carried out after several days from applying the substance as it is faster gathered in the tumour in bigger quantities than in case of healthy tissues and it is rinsed out of it more slowly [1]. The polarized light causes cell apoptosis, which in the macroscopic scale leads to the decrease of the tumour size [3].

In Lightale's study a high efficiency of the photodynamic therapy was confirmed, especially with reference to tumours located in the pericardial area, exceeding the methods with the application of the YAG laser with reference to the symptoms remission period [4].

Litle et al. analysed the results of the photodynamic therapy in case of 215 patients suffering from the oesophageal carcinoma in terms of the dysphagia remission and its duration, treated in the period 1996–2002.

He confirmed the occurrence of the symptoms remission in case of 85% of patients with an average period of 66 days free from dysphagia. The main, although not very frequent, side effects of the treatment included hypersensitivity of the skin to the sunlight in case of 6% of the patients [5].

Other researchers in their studies also confirm the efficiency and safety of this method. Luketich's two-year-long observation of a group of 77 patients subject to the photodynamic therapy of the oesophageal carcinoma proved 4-week-long periods free from dysphagia and an improvement in terms of this symptom in case of 90.8% of patients. Also in this group skin reactions of the nature of sunburns were confirmed in case of 10% of the patients [6]. Moghissi et al. collected the results of the photodynamic treatment of patients suffering from oesophageal carcinoma for the period of the last fourteen years. He proved a 100% satisfaction of patients with this treatment method, both in the early and late stage of the disease, with the main side effect in a form of light hypersensitivity appearing in case of 5% of patients [7].

An interesting dissertation by Spinelli et al, concerned in turn the photodynamic therapy applied in case of patient suffering from the neoplasms of the upper and lower section of the alimentary tract. It proved an improvement in case of 74% and 97%, respectively, after the palliative treatment of these diseases [8].

Some researchers emphasize the advantage of the photodynamic therapy over the endoscopic ablation of a tumour with the use of the YAG laser.

Weigel in his study proved a smaller risk of perforation in case of an endoscopic phototherapy than in case of the laser termoablation [9].

An unquestionable disadvantage, often determining the palliative nature of this method, is reaching only the superficial parts of the tumour by the laser light, which renders it impossible to destroy neoplastic cells located deeper. Therefore photodynamic sessions must be repeated due to the tumour regrowth and the recurrence of the occlusion.

The author's own observation refers to a patient with the symptoms of dysphagia and vomiting, suffering from the breast cancer metastasis to the pericardial area of the stomach. It has been in progress since January 2006. Throughout the whole treatment period the patient has been given megestrol, glucocorticoids, prokinetic drugs, and in case of the aggravation of ailments — parenteral hydration and opioid painkillers. It must be stated that repeated endoscopic photodynamic sessions together with a complex palliative pharmacotherapy aiming at decreasing the seeming dimensions of the tumour and the improvement of the peristalsis of the upper section of the alimentary tract significantly contributed to the improvement of the quality of the patient's life. Considering the fact that in January 2006 the patient

reported to the Palliative Care Consulting Centre with the symptoms of a practical occlusion of the upper section of the alimentary tract and she is still (i.e. in November 2007) alive, this treatment method must be recognized as an optimal one. The periods free from dysphagia and vomiting lasted 8 weeks in case of the first four sessions and 4 weeks in case of the remaining two. The yearly interval between the fourth and the fifth session was probably connected with a gradual decrease of the food intake relating to the anorexia-cachexia syndrome, and — to the same extent — to the application of anti-inflammatory, prokinetic and antianorectic drugs. The frequency and form of meals was also very significant.

Using the photodynamic therapy is even more significant when we consider the fact that the initial tests of histopathologic specimen of the gastric tumour rather suggested the presence of a lymphoma deriving from the lymphocytes B or an anaplastic carcinoma, and not a breast cancer metastasis. The original bad condition of the patient and the exhaustion of the chemotherapeutical options prior to the radical treatment of the breast cancer preserved the patient from an exhausting palliative chemotherapy aiming at restoring the patency of the alimentary tract. The further clinical course, the location and nature of metastases, allowed to confirm the nature of the gastric tumour as a dissemination of the breast cancer to distant organs.

Conclusions

1. The application of a complex symptomatic pharmacotherapy, comprising megestrol, glucocorticoids, opioid painkillers, periodical parenteral hydration prior to the photodynamic therapy contributed to a significant improvement of the quality of the patient's life, expressed in two-month-long periods free from the symptoms and the prolongation of the survival time, which is measured as a period of 20 months from the first session.
2. Repeated photodynamic sessions on the tumour located in the pericardial area of the stomach caused the symptoms remission of the occlusion in the upper section of the alimentary tract in case of a patient suffering from symptoms connected with the neoplastic dissemination of the breast cancer to the stomach.

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