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ABOUT COVER

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AIMS AND SCOPE

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MINIREVIEWS

Breast cancer metastasizing to the upper gastrointestinal tract (the esophagus and the stomach): A comprehensive review of the literature

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Abstract

Breast cancer can infrequently metastasize to the upper gastrointestinal (GI) tract but the exact incidence is not well established-there is considerable variation between incidence reported from clinical studies and incidence noted in autopsy series. Clinical presentation can be very non-specific and often mimics primary gastrointestinal conditions. Endoscopy alone may not be sufficient to make a diagnosis and misdiagnosis is also common. A high degree of awareness and clinical suspicion is required to establish metastases to the upper GI tract. We undertook a comprehensive review of the available literature on breast cancer metastases to the esophagus and stomach including the clinical symptoms and presentation, endoscopic features, additional diagnostic imaging modalities, treatment and outcomes.

Key Words: Metastatic breast cancer; Esophagus; Stomach; Endoscopy

Core Tip: Diagnosis if breast cancer metastasizing to the upper gastrointestinal (GI) tract requires a high index of suspicion and muti-modal approach to establish the diagnosis. GI symptoms are often non-specific and endoscopic findings can be subtle. We performed a comprehensive review of the available literature on this topic.

INTRODUCTION

Breast cancer is the second leading cause of death by cancer in women, after lung cancer[1]. The incidence of breast cancer has been increasing and the associated mortality rate is high (12.8 and 15 per 100000 in developed and developing countries, respectively)[2]. Approximately 6.8 million women were living with breast cancer in 2018, and there were an estimated 2.3 million new cases in 2020, surpassing the incidence of lung cancer[2]. Moreover, metastatic breast cancer is associated with a five-year survival of less than 30%[3].

This type of tumor commonly metastasizes to the bone, liver, and lungs[4]. However, different histological types demonstrate different metastatic patterns[4]. Breast cancer metastasizing to the gastrointestinal tract is less common, but an incidence of up to 16.4% has been reported in autopsy studies[5]. However, clinical studies suggest a much lower incidence. A study from Montagna *et al*[6] identified 2588 patients with metastatic breast cancer from these, 1.55% had metastasis to the gastrointestinal (GI) tract[6]. In another study of 12001 patients with metastatic breast cancer, only 0.34% had GI metastases[7].

The reported frequency of the location of the metastases along the GI tract is conflicting. One study reported a higher frequency of metastases in the stomach and esophagus and the lowest in the colon[5]. Another retrospective study revealed a higher number of metastases in the colon, followed by the stomach, small bowel, and esophagus[7]. However, an extensive review of breast cancer metastasis revealed that the stomach was the most affected site[8].

Histologically, the lobular type of breast cancer has a higher association with GI metastases when compared to other types of breast cancer[6,7,9]. The clinical signs and symptoms are usually nonspecific. Moreover, the endoscopic findings can mimic gastritis, and the biopsies retrieved *via* endoscopy are often negative. These factors make the diagnosis of GI metastases from breast cancer highly challenging and lead to delays in management.

The aim of this work was to comprehensively review the literature on breast cancer metastases to the esophagus and stomach and understand the clinical symptoms and presentation, endoscopic features, additional diagnostic imaging modalities, treatment, and outcomes.

In September 2022, the authors searched for articles concerning breast cancer metastasizing to the esophagus and stomach using PubMed databases. Only the articles written in English were selected, and those articles in which the patients were individually characterized and contained enough information regarding age, symptomatology, diagnostic, and treatment modalities were analyzed. No autopsy studies were included. From the articles obtained, the references were reviewed to retrieve additional articles.

For each study, the following parameters were assessed when available: Patient age, the time interval from index breast cancer diagnosis to the diagnosis of esophageal/gastric metastases, histological type of breast cancer, the hormone receptor status of the primary tumor, the type of treatment of the primary tumor, the clinical presentation preceding the diagnosis of the metastatic lesions, misdiagnosis, the anatomical location of the metastatic lesions, the endoscopic findings, the use of additional imaging, the diagnostic modality that provided the final confirmatory biopsies, the histological findings and hormonal status and specific markers of the esophageal/gastric metastases, the type of treatment for the metastatic lesions, the presence of other metastatic sites and finally the clinical outcome.

We extracted the data from each study, one parameter at a time. The data was entered into an Excel database which was used for the descriptive statistical analysis.

Esophagus

We found 74 studies individually describing and characterizing patients with breast cancer metastasizing to the esophagus. A total of 77 patients were included. The median age at diagnosis of esophageal metastases from breast cancer was 64 years, and all patients were female. The median time interval from the diagnosis of breast cancer to the diagnosis of metastases was 10 years. One patient was diagnosed with esophageal metastases before the diagnosis of breast cancer.

In 14 patients, the type of breast cancer was reported-4 (29%) were lobular, 9 (64%) were ductal, and one patient had both types (Table 1). Six studies reported the hormone receptor status of the primary tumor individually. Estrogen receptors (ER) were positive in four (67%) patients and negative in three (50%). Progesterone receptors (PR) were positive in two patients and negative in four (67%). Human epidermal growth factor receptor 2 (HER2) was not positive in any of the cases, and it was negative in three cases (50%). The treatment of the primary tumor was individually reported in 67 patients. Mastectomy was performed in 97% (*n* = 65) of cases, radiotherapy in 49% (*n* = 33), chemotherapy in 30% (*n* = 20), and hormonal therapy in 19% (*n* = 13). Ten percent (*n* = 7) of patients had surgery, chemotherapy, and hormonal therapy, and 6% (*n* = 4) underwent all 4 treatment modalities.

The clinical presentation was reported in 52 patients (Table 2). Patients most commonly presented with dysphagia (96%, *n* = 50) or weight loss (31%, *n* = 16), and 27% (*n* = 14) reported both. The site of esophageal involvement was described in 61 cases. The middle third of the esophagus was affected in 66% (*n* = 40) of cases, followed by the lower third (21%, *n* = 13) and the upper third (13%, *n* = 8). Moreover, in 16 cases there were no other reported sites of metastases, 20 patients had one more site of metastases, and 8 patients had more than two additional sites of metastases.

Table 1 Clinical characteristics of patients with metastatic breast cancer to upper gastrointestinal tract

	Esophagus (%)	Stomach (%)
Age (years)	64	57.3
Breast cancer type		
Lobular	4 (29)	135 (72)
Ductal	9 (64)	49 (36)
Initial treatment of breast cancer		
Surgery	65 (97)	70 (80)
Radiotherapy	33 (49)	28 (32)
Chemotherapy	20 (30)	42 (48)
Hormonal Therapy	13 (19)	33 (38)
Median time between diagnosis of primary breast cancer and GI metastases (years)	10	4

GI: Gastrointestinal.

Table 2 Clinical symptoms of patients with metastatic breast cancer to upper gastrointestinal tract

	Esophagus (%)	Stomach (%)
Symptoms		
Dysphagia	50 (96)	-
Weight loss/anorexia	16 (31)	80 (42)
Abdominal pain	-	108 (57)
Nausea/vomiting	-	82 (43)
Gastrointestinal bleed	-	22 (12)

Endoscopic features were reported in 67 patients (Table 3). The majority (84%, *n* = 56) had intact esophageal mucosa, and 9% (*n* = 6) had mucosal changes. These included hyperemic mucosa, mucosal edema, and mucosal erosions. Esophageal stenosis was identified through endoscopy in 61% (*n* = 41) of patients, whereas a mass was observed in only 3% (*n* = 2) of patients. A computed tomography (CT) scan showed abnormal findings in 32 patients. These were described as esophageal wall thickening. For all 12 patients in whom an endoscopic ultrasound (EUS) was performed, the findings were abnormal and were also described as thickening of the esophageal wall.

The diagnostic procedure that that resulted in confirmatory biopsy was reported in 46 individual cases. The biopsies that established the final diagnosis were retrieved during surgery in 67% (*n* = 31) of cases, esophagogastroduodenoscopy (EGD) in 15% (*n* = 7), EUS 7% (*n* = 3), autopsy in 4% (*n* = 2), and endoscopic mucosal resection in 2% (*n* = 1). Moreover, the first biopsy retrieved by EGD was reportedly negative in at least 52 patients (68%). Only 13 cases had the hormonal receptor status of the metastatic lesions reported. All of them were ER+, 69% (*n* = 9) were PRG+ and 8% (*n* = 1) were HER+ (Table 4).

The treatment modalities for esophageal metastases were reported in 66 patients (Table 5). Surgery alone (in the form of partial esophagectomy or esophageal myotomy) was performed in 20 (30%) of cases, 15 (23%) patients received hormonal therapy and/or chemotherapy alone, and radiation alone was reported in 6 (9%) patients. Twelve (18%) patients had surgery combined with chemotherapy and/or hormonal therapy, and 10 (15%) patients had radiation combined with chemotherapy and/or hormonal therapy. In addition, thirty-two patients (48%) underwent esophageal dilation, and nine (14%) had a stent placed for symptomatic relief of dysphagia.

Esophageal perforation occurred in 11 patients as a complication of symptomatic treatment with either dilation or stent. In one patient, the perforation occurred secondary to tumor evasion.

The outcome was reported in 55 patients (Table 5). Twenty-four (44%) patients died within one year, 9 (16%) patients died within 5 years, and 19 (35%) patients were alive at one year follow-up. In 7 patients, the follow-up was reported at 1 mo, and they were alive.

From the patients that were alive at 1 year (*n* = 19), 16% (*n* = 3) had surgery only, 32% (*n* = 6) had surgery and chemotherapy and/or hormonal therapy, 32% (*n* = 6) had only chemotherapy and/or hormonal therapy, 16% (*n* = 3) had radiation combined with chemotherapy and/or hormonal therapy, and 5% (*n* = 1) had radiation alone.

Table 3 Endoscopic characteristics of patients with metastatic breast cancer to upper gastrointestinal tract

	Esophagus (%)	Stomach (%)
Location		
Upper third of the esophagus	8 (13)	-
Middle third of the esophagus	40 (66)	-
Lower third of the esophagus	13 (21)	-
Proximal stomach	-	24 (21)
Middle stomach	-	13 (11)
Distal stomach	-	38 (32)
Diffuse in the stomach	-	42 (36)
Endoscopic findings		
Normal mucosa	56 (84)	-
Mucosal changes	6 (9)	-
Stenosis	41 (61)	-
Mass	2 (3)	4 (3)
Linitis plastica	-	44 (36)
Ulcer	-	30 (25)
Polyps	-	7 (6)
Nodularity	-	7 (6)
External compression	-	23 (19)

Table 4 Hormone status and immunohistochemistry markers for patients with metastatic breast cancer to upper gastrointestinal tract

	Esophagus (%)	Stomach (%)
Tumor receptors of primary breast tumor		
ER+	4 (67)	37 (88)
ER-	3 (50)	5 (12)
PRG+	2 (33)	29 (69)
PRG-	4 (67)	12 (29)
HER+	0 (0)	2 (5)
HER-	3 (50)	23 (55)
Tumor receptors and markers of gastrointestinal metastases		
ER+	13 (100)	86 (57)
ER-	-	39 (26)
PRG+	9 (69)	30 (20)
PRG-	-	18 (12)
HER+	1 (8)	8 (5)
HER-	1 (8)	38 (25)
CK7+	3 (23)	25 (17)
CK20+	-	1 (1)
CK20-	3 (23)	18 (12)

Stomach

In our literature review, we found 51 studies describing and characterizing patients with breast cancer that had

Table 5 Treatment and outcomes of patients with metastatic breast cancer to the upper gastrointestinal tract

	Esophagus (%)	Stomach (%)
Treatment of primary tumor		
Surgery	65 (97)	70 (80)
Radiotherapy	33 (49)	28 (32)
Hormonal therapy	13 (19)	33 (38)
Chemotherapy	20 (30)	42 (48)
Treatment of metastases		
Surgery	20 (30)	12 (11)
Surgery and chemotherapy/hormonal therapy	13 (20)	15 (15)
Chemotherapy/hormonal therapy	15 (23)	74 (70)
Radiotherapy only	6 (9)	3 (3)
Radiation and chemotherapy/hormonal therapy	10 (15)	-
Dilation	32 (48)	-
Stent placement	9 (14)	-
Outcome		
Alive at one month	7 (13)	-
Alive at one year	19 (35)	13 (24)
Dead at 1 yr	24 (44)	20 (37)
Dead at 2 yr	-	18 (33)
Dead at 5 yr	9 (16)	-
Dead at 10 yr	-	1 (2)

metastasized to the stomach. These included a total of 210 patients. Of these, 208 were female, and two were male; the mean age was 57 years. The median time from breast cancer diagnosis to gastric metastases detection was 4 years (Table 1). Some patients had both primary cancer and metastases diagnosed simultaneously while others were diagnosed with gastric metastasis almost two decades after the diagnosis of the primary malignancy. Moreover, five patients had gastric metastasis identified before the diagnosis of primary cancer. Among 188 patients, 135 (72%) had lobular breast cancer, 49 (36%) had ductal, 3 had both lobular and ductal, and one had a phyllodes tumor. The presence of hormone receptors in the primary tumor was individually described in 42 patients. ER were positive in 37 (88%) patients and negative in five (12%). Twenty-nine (69%) patients had positive PR receptors; negative PR receptors were reported in 12 (29%) patients. In 23 (55%) patients, HER2 was negative, whereas this receptor was reportedly positive in only two patients (5%). In 28 (67%) patients, the primary tumor was positive for ER and PR. The treatment for the primary breast cancer was described in 87 patients. Breast surgery (radical mastectomy or lumpectomy) was performed in 80% (*n* = 70) of patients, 32% (*n* = 28) of patients received radiotherapy, 48% (*n* = 42) received chemotherapy, and 38% (*n* = 33) received hormonal therapy. Moreover, 14 (16%) patients received all treatment modalities, and six (7%) patients only received chemotherapy and hormonal therapy.

The clinical presentation was reported in 189 patients (Table 2). The most common symptoms were abdominal pain (57%; *n* = 108), nausea and/or vomiting (43%; *n* = 82), weight loss and/or anorexia (42%; *n* = 80), and gastrointestinal bleeding (GIB) (12%; *n* = 22). The GIB was described as hematemesis (3 patients), melena (3 patients) or non-specific bleed (16 patients). The most common location of abdominal pain was the epigastrium. Other clinical features included dysphagia, early satiety and anemia.

The reported location pf the gastric was most commonly diffuse (36%, *n* = 42) and distal (32%, *n* = 38), followed by proximal (21%, *n* = 24) and mid stomach (11%, *n* = 13). The endoscopic findings were described in 122 patients (Table 3). These included linitis-plastica-like features (*n* = 44, 36%), ulceration (*n* = 30, 25%), nodularity (*n* = 7, 6%), polyps (*n* = 7, 6%), and mass (*n* = 4, 3%). Moreover, external compression/stenosis was described in 23 patients (19%).

In 26 patients, additional imaging was reported. The CT scan abnormal findings in 17 (65%) patients and was normal in two (8%) patients and. The abnormal findings included thickening of a portion of the gastric wall and/or the presence of a mass in the stomach. Three patients underwent EUS with findings of gastric mucosal thickening in 2 patients and a rounded submucosal hypoechoic lesion in another patient [who also had an unremarkable positron emission tomography (PET) scan]. Finally, PET was done in 4 patients and the results showed no abnormal findings in 2.

Twelve patients were initially misdiagnosed. The misdiagnoses included primary gastric cancer (7 patients), Crohn's disease (2 patients with widespread GI involvement), gastric lymphoma (1 patient), gastric neuroendocrine tumor (1 patient) and Ménétrier disease (1 patient).

The biopsies obtained from the initial EGD were positive for malignancy in 88 patients and negative in 19. Moreover, in 64 patients, the modality that provided the confirmatory biopsy establishing the correct diagnosis was reported individually. Confirmatory biopsies were obtained by EGD in 35 (55%) patients, surgery in 23 (36%) patients, autopsy in five (8%) patients, and EUS with fine-needle aspiration (FNA) in one (2%) patient.

The hormonal receptors of gastric metastases were reported in 150 patients (Table 4). ER was positive in 57% (n = 86) of patients and negative in 26% (n = 39), PR+ in 20% (n = 30), and HER+ in 5% (n = 8). In addition, in 25 patients the gastric metastases were CK7+, in 18 patients were CK20-, and in nine patients were CK7+/CK20-. Signet ring cell morphology was reported in 10 patients.

Among 38 patients reported as having breast cancer metastases involving other organs, 17 (44%) patients had one additional site of metastases, 18 (46%) patients had two or more sites, and four (10%) patients only had gastric involvement.

The treatment modalities for the gastric metastases were grouped into surgery, surgery with chemotherapy and/or hormonal therapy, chemotherapy and/or hormonal therapy only (Table 5). The choice of treatment of gastric metastases was reported in 105 patients. Twenty-eight patients underwent surgery, from which 16 (16%) also received adjuvant chemotherapy and or/hormonal therapy. Seventy-four patients (70%) only received chemotherapy and/or hormonal therapy, and three (3%) received radiotherapy.

The outcome was described in 54 patients. Death was reported in 39 (72%) patients, 20 (37%) patients died within one year of the diagnosis of metastases, 18 (33%) patients died within two years and one (2%) patient died within 10 years. Thirteen (24%) patients were stable at 1 year follow up and 2 (4%) patients were stable at an unknown follow-up time.

EPIDEMIOLOGY

Metastatic breast cancer affecting the esophagus and the stomach is rare compared to other organs[10,11]. However, the actual incidence is difficult to assess. Autopsy studies have reported an incidence of metastases to the esophagus and stomach of around 0.3%-6.1% and 0.2%-5.4%, respectively[10-14].

The most commonly reported sites of the primary tumors metastasizing to the esophagus are the lung, the stomach, the breast, and the liver[10]. Whereas primary cancers commonly metastasizing to the stomach include the lung, the breast, and the skin (melanoma) cancers[11]. In one study of gastric metastases, melanoma was the most common primary tumor (38%), followed by breast cancer (33%) and lung cancer (6%)[15]. However, in another study, breast cancer was the primary tumor in only 5.7% of patients, whereas lung cancer was the primary tumor in 18.9% of patients with gastric metastases[16].

Given the rarity of occurrence and diagnostic challenges, the true incidence of breast cancer metastases in the esophagus and stomach is hard to establish, and studies have shown varying results. Moreover, the results from clinical studies are much lower than those from autopsy studies[5,7,10,12,17].

The autopsy study of Mizobuchi *et al*[10] included 188 cadavers from patients with metastatic breast cancer, and 14 (7.4%) had esophageal metastases[10].

In the study by Mclemore *et al*[7], 12001 patients with metastatic breast cancer were identified[7]. Four (0.03%) patients had esophageal metastases, and 15 (0.12%) had stomach metastases. Similarly, Ellis *et al*[17] reviewed 19049 breast cancer cases, and only four (0.02%) patients had gastric metastatic lesions[17]. On the other hand, Oda *et al*[12] observed a much higher number-from 526 autopsies of the breast, 61 (11.6%) patients had gastric metastasis[12]. These differences in rates between autopsy studies and studies in live individuals point towards an underdiagnosis and emphasize the challenges in establishing diagnosis of breast cancer metastases to the upper GI tract.

The most reported type of breast cancer metastasizing to the gastrointestinal tract is the lobular type[4,7,18]. We observed a similar finding with respect to gastric metastases (73%). Nevertheless, in the esophageal metastases group, we observed the inverse. However, the sample size of patient with reported sub-type of breast cancer among those with esophageal metastases was too small.

The median age for the esophageal and gastric groups was 59 and 64, respectively. These were similar to those from other studies[7,19]. Overall, only two patients were male (0.7%), and both had gastric metastases[20,21].

CLINICAL FEATURES

The clinical signs and symptoms of metastases are very nonspecific. In the case of esophageal metastasis, dysphagia is undoubtedly the most common symptom. However, patients with gastric metastasis can have a wider variety of symptoms, including abdominal pain (most commonly), nausea and/or vomiting, weight loss and/or anorexia, and GIB. Fulminant hematemesis[22] and gastric perforation[23,24] occurred in isolated reports of patients with gastric metastases.

In the esophagus, the middle third was the most common location of metastases. This finding was also described in the case series of Rampado *et al*[25] and could be due to the anatomical location of mediastinal lymph nodes[25]. On the other hand, the location of gastric metastases was more variable. For instance, in the study of Almubarak *et al*[18] (n = 35), the distal and proximal portions were equally involved (n = 15), whereas in the study of Taal *et al*[19] (n = 51), a higher proportion of patients had diffuse gastric metastases (n = 23)[18,19].

DIAGNOSTIC CHALLENGE

The diagnosis of breast cancer metastatic to the upper GI tract is challenging, and misdiagnosis is not uncommon, especially with stomach involvement. From our results, misdiagnosis of primary gastric cancer occurred in several cases [21,23,26-30]. In addition, a misdiagnosis of a benign esophageal stricture has been reported more than once[31,32]. The time interval between the diagnosis of primary tumor and the diagnosis of either esophageal or stomach metastases can be several decades. Consistent with the findings of Taal *et al*[19] and Almubarak *et al*[18], our study also showed a median interval between the primary tumor and the diagnosis of stomach metastases to be 4 years. Interestingly, the median time in the esophageal group was much higher, 13 years. Importantly, gastrointestinal metastases can be the first manifestation of breast cancer[22,26,30,33-35].

Depending on the patient's symptoms, an EGD is often part of the first steps of the initial evaluation. Interestingly, mucosal changes are rare in the esophageal group but very frequent in the gastric. Similar to the findings in our article, in the study by Rampado *et al*[25], 96% (*n* = 25) of the patients had a normal esophageal mucosa on EGD[25]. The common abnormal finding was esophageal stenosis.

Although gastric mucosal changes are common, they are nonspecific. The most common mucosal appearances are linitis plastica, ulceration, and polyps[19,23]. However, rarely, the mucosal features might mimic other diseases such as lymphoma[36].

A CT scan is an important diagnostic tool as it frequently reveals thickening of the wall of the esophagus and the stomach over the affected areas. Hence, we recommend it to be part of the diagnostic workup, especially because an EGD might be unrevealing. The utilization of a EUS should be considered as it can show changes in the esophageal and gastric wall and can facilitate the use of FNA, which might serve as a better device to retrieve a biopsy[25,37,38].

Surprisingly, in four gastric cases that reported the use of PET scans, two did not show an increased fluorodeoxy-glucose (FDG) uptake[39,40]. However, the other two patients had an increased FDG activity in the exact location of the metastatic lesions[21,27]. Further information is warranted regarding its sensitivity in detecting metastases to the gastrointestinal tract.

A tissue biopsy is required to make a diagnosis which can be obtained through endoscopy, EUS/FNA, or surgery. Since mucosal changes in the esophagus are rare, using EGD may lead to negative biopsy results, as seen in our study (68%). A similar finding was emphasized in the studies of Taal *et al*[19], where seventeen patients with gastric metastases had a negative first biopsy[19,23]. However, only one additional study reported this. Nonetheless, the reliability of the biopsies retrieved by EGD is higher when the metastases occur in the stomach compared to the esophagus. This could be due to the frequent mucosal changes observed in the gastric group compared to the esophageal group. Although more invasive, EUS with FNA might be a better option to obtain the tissue specimens in the esophagus as it detects submucosal changes and can also collect submucosal tissue[38,41,42].

The histological findings are most often those of an undifferentiated adenocarcinoma, and signet ring cell morphology is often seen[43]. For that reason, it can lead to a misdiagnosis of gastrointestinal signet ring cell carcinoma. Lobular breast cancer and gastrointestinal signet ring cell carcinoma are the most common sources of metastatic signet ring cells. Hence, immunohistochemical staining to differentiate these entities is crucial[44]. Cytokeratin 20 (CK20) is strongly associated with gastrointestinal signet ring cell carcinoma, whereas cytokeratin 7 (CK7) is strongly associated with lobular carcinoma of the breast. As suggested by Tot *et al*[44], CK20 and ER can differentiate gastrointestinal signet ring cell carcinoma and lobular breast cancer[44]. Their study identified 33 of 34 metastases as gastrointestinal (CK20+) and mammary (CK20-). Moreover, the CK20+/ER- pattern correctly identified all the gastrointestinal metastases. In our study, only 17 cases reported the CK20 status, and only one was CK20+, but it was simultaneously positive for CK7. The latter is highly associated with invasive breast cancer; but, it can still be positive in metastases of gastrointestinal origin [45]. In addition, the presence of hormonal receptors is suggestive of breast cancer. Unfortunately, in the esophageal group, there was not enough individual data regarding the presence of hormonal receptors on both the primary breast tumor and the esophageal metastases. However, in the stomach group, 18 cases reported the hormonal status of both primary and metastatic tumors. The concordance rate of ER receptors was 81%, and that of the PRG receptors was 53%. These results are aligned with results from a large study by Grinda *et al*[46] in which the authors found that the ER concordance rate was 84.9% and that of PR was 68.9% between primary breast cancer and breast cancer metastases to the brain, lymph nodes, lungs, pleura, liver, skin, and bones[46].

TREATMENT AND OUTCOME

The treatment modalities for both esophageal and gastric metastases range between surgery, radiation, chemotherapy with or without hormonal therapy, and radiation therapy. These can be used alone or in combination. Moreover, palliation with esophageal dilation or placement of a stent can confer improvement of the dysphagia. However, there is a considerable risk of esophageal perforation, as noted in several reports[25,47-50].

From the 59 cases of esophageal metastasis that provided information on the treatment and outcome, patients who received chemotherapy and/or hormonal therapy had a better outcome. However, there was no significant difference in the outcome between the group that had surgery combined with chemotherapy and/or hormonal therapy and those who had chemotherapy and/or hormonal therapy alone. These findings were similar in the gastric group.

The fact that the esophageal group had a higher percentage and number of patients having surgery might be due to several factors. One is that only in a few numbers of cases was the EGD able to retrieve diagnostic tissue biopsies, and for that reason, many patients ended up having an esophagectomy for both diagnostic and treatment purposes. In addition,

the fact that the metastatic lesions are often localized to one segment of the esophagus can also make the feasibility of surgery more manageable, whereas, in the stomach, diffuse involvement is frequently observed.

CONCLUSION

Breast cancer metastasizing to the esophagus and stomach is rare. However, differences in frequency seen between autopsy and clinical studies indicate that it is underdiagnosed. This could be due to the lack of specific symptoms and the challenge of establishing the diagnosis. It is essential to have a high degree of suspicion when a patient with a history of breast cancer develops dysphagia, weight loss, and other gastrointestinal symptoms. The endoscopic features vary considerably between patients, and initial biopsies might be negative for malignancy, especially in the esophagus. For this reason, a multimodal diagnostic approach using additional imaging, preferably a CT scan, should be considered. In addition, endoscopic surveillance with a lower time interval should be contemplated in breast cancer survivors.

FOOTNOTES

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