



The Gluteus Muscle an Unusual Localization of a Colon Cancer Metastasis: Case Report and Review of Literature

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Abstract

Skeletal muscle metastases are very rare events in colorectal cancer despite the fact that the well vascularized skeletal muscles comprise nearly 50% of the total human body mass. The prognosis in such patients is usually poor. A case of a 69-year-old woman presenting respectively seven and nine months following a colonic cancer resection a isolated left and right gluteal muscle skeletal metastasis following the resection of a colonic cancer is presented. The purpose of this report is to document this unusual site of colonic cancer metastasis and to review the literature in relation to this unusual clinical event.

Keywords: Colon cancer metastasis; Skeletal muscle metastasis; CEA

Introduction

Although skeletal muscles comprise nearly 50% of the total human body mass and are well vascularized Muscle Metastases of Colorectal (CRMM) are very rare. If occurs the prognosis of such patients is dismal. A case of such muscular colon metastasis as well as a review of the hereto related recent literature is reported.

Case Presentation

A previously healthy 69-year-old Caucasian female was referred for evaluation of iron-deficient anemia. Except for an occasional right-side the abdominal pain. Lab studies done in the context of a negative clinical finding revealed a Hgb level of 10.5 mg/dl, normal liver tests but an elevated CEA level at 20.51 ng/ml. Colonoscopy revealed a sub-occlusive lesion of the right colon corresponding at the Pet-scan to a solitary hypermetabolic focus. After further negative work-up a radical right colectomy was per done. Pathology confirmed the presence of a moderately differentiated mucoid colonic a pT3N0M0 adenocarcinoma infiltrating the perivisceral adipose tissue; all 44 lymph nodes were tumor free. Absence of hMLH1 and PMS2 protein expression suggested an unstable colorectal cancer (MSI-H colorectal cancer). Except for a left limb discomfort, postoperative controls at 1 and 4 months were normal and CEA returned to normal two months post surgery. Four months after surgery she developed severe pains when mobilizing her left leg. MNR of the left gluteal region revealed seven months after surgery a 39 mm large intragluteal tumor (Figure 1A). This finding went along with an elevation of the CEA of 7.7 ng/ml. Due to invalidating pain it was decided after multidisciplinary oncologic consult to resect this painful lesion. Pathology revealed this tumor to be an intramuscular metastasis of the previously resected colon cancer. Three months later PET-scan and MNR revealed a similar, 20 mm large, lesion in the right ischial region (Figure 1B). Due to the symptomatic aspect of the lesion a decision was taken to also resect this second lesion. Pathology confirmed this lesion again to be another well-defined but encapsulated colonic muscular metastasis. It was decided not to proceed with adjuvant chemotherapy. Six years after colectomy, and 65 and 62 months after resection of the two muscular metastases she remains tumor free and has a normal CEA level.

Discussion

Despite the fact that striated muscle tissue represents half of the total body mass, muscular metastases are rare [1-3]. It may well be that this low reported incidence in fact reflects an under diagnosing. Indeed it is known from autopsy reports that as many as 20% of cancer patients may present muscular metastases Hay good's review revealed that lung cancer has the highest ability to metastasize into the striated muscles reaching a number as high as 72%, a number in

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Received Date: 29 Jul 2019

Accepted Date: 16 Sep 2019

Published Date: 20 Sep 2019

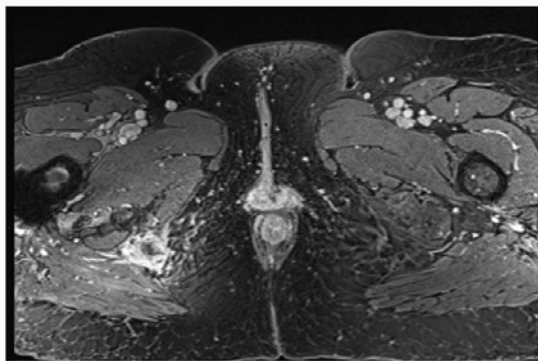
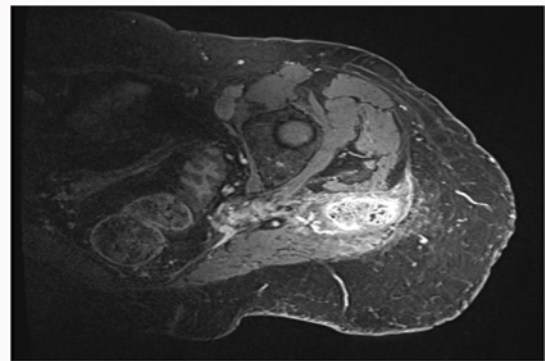
Citation:

Buemi A, Aunac S, Mansvelt B. The Gluteus Muscle an Unusual Localization of a Colon Cancer Metastasis: Case Report and Review of Literature. *Clin Surg*. 2019; 4: 2575.

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Table 1: Clinical characteristics of patients with skeletal muscle metastases from colorectal carcinoma reported in the literature.

Case	Author	Age (years)	Primary Carcinoma a Outcome	Presentation of skeletal muscle metastases	Time interval	Site of muscle metastasis	metastase/sex	Solitary
1	Laurence [28]	70/F	Cecum	Pain	24	Right calf	No	Dead
2	Laurence [28]	51/M	Transverse colon	Asymptomatic	Synchronous	Right forearm	No	Dead
3	Torosian [29]	68/F	Transverse colon	Pain	60	Left thigh	Yes	Ns
4	Caskey [30]	62/M	Transverse colon	Mass/swelling	6	Left gluteus	NS	Ns
5	Caskey [30]	30/F	Rectum	Pain	6	Left psoas	NS	Ns
6	Caskey [30]	71/F	Colon	Asymptomatic	NS	Right psoas	NS	Ns
7	Lampenfeld [31]	75/F	Rectum	Mass/swelling	21	Left gluteus	Yes	Alive
8	Araki [32]	66/M	Ascending colon	Pain	6	Right teres major	Yes	Dead
9	Funatsu [33]	64/F	Ascending colon	Asymptomatic	Synchronous	Diaphragm	Yes	Dead
10	Hasegawa [34]	60/M	Transverse colon	Pain/Mass	11	Right extensor carpi	No	Dead
11	Homan [35]	72/F	Colon	Pain	NS	Left thigh	No	Dead
12	Palazzo [36]	NS	Colon	Pain	NS	Left thigh	No	Dead
13	Burgueno Montanes [25]	60/M	Sigmoid	Exophthalmos/other symptoms	NS	Lateral rectus muscle	No	Dead
14	Unsal [37]	31/M	Rectum	Pain/Mass	63	Right forearm	Yes	Alive
15	Iusco [40]	NS	Colon	Pain/Mass	NS	Left calf	NS	NS
16	Naik [41]	56/M	Ascending colon	Mass/swelling	60	Rectus abdominal muscle	No	NS
17	Attili [23]	35/F	Rectum	Mass/swelling	Synchronous	Upper lip	No	Dead
18	Hattori [26]	64/F	Rectum	Asymptomatic	96	Paraspinal	Yes	Alive
19	Okada [38]	70/M	Rectum	Pain	12	Right thigh	No	Alive
20	Jin [27]	70/M	Ascending colon	Asymptomatic	Synchronous	Diaphragm	Yes	Alive
21	Takada [39]	71/M	Sigmoid	Asymptomatic	60	Left psoas	No	Alive
22	Garcia-Fernandez [24]	32/M	Colon	Exophthalmos/other symptoms	NS	Orbital	No	Dead
23	Landriscina [42]	71/F	Ascending colon	Pain	7	Right deltoid	No	Dead
24	Present Case	69/F	Ascending colon	Pain	7	Left gluteus	Yes	Alive

**Figure 1A:** Large intragluteal tumor.**Figure 1B:** Lesion in the right ischial region.

great contrast to the only 6% reported for colorectal cancers. This number favors the hypothesis of underreporting of CRMM due to the lack of detailed autopsy reports. The relatively low number of reported CRMM is may be explained by the fact that damage of the microvasculature of skeletal muscles by cancer cells is rare, that blood flow to the muscles may be extremely variable and that a low molecular weight non-protein factor produced by muscular tissues may inhibit tumor cell proliferation [4-31]. An English and French literature search using key words: Colon Cancer Metastasis/Skeletal Muscle Metastasis allowed identifying 24 cases of CRMM (Table 1). All CRMM developed in the muscles of the four extremities and trunk

and they were mostly identified late either as an identifiable tumor mass or as a mass found at the occasion of investigation of a severe pain syndrome. In case of development of CRMM the prognosis is poor. The one year mortality rate is related to the number of identified metastases; in case of a solitary muscular lesion has a better prognosis but sometimes this lesion may be the "tip of an iceberg", expressing widespread tumor burden. Thorough investigation is thus necessary in order to guide the treatment. If the CRMM is part of advanced cancer spread only palliative analgesic treatment should be undertaken using radiotherapy. If such treatment is not possible, surgery may be indicated, the same holds for patients presenting a

neurological deficit. In case of a solitary CRMM aggressive surgery may be indicated as shown in the here presented case report in which surgery even allowed to obtain a long-term disease free survival.

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