

Heterotopic ossification in primary colorectal tumours – Case report and Literature review

Mahmoud ABDELDAYEM , Christopher JENKINS, Dale CARTWRIGHT, Adam JAMES, Azei BOTES, Nader NAGUIB and Anton Joseph. Prince Charles Hospital - UK .

ABSTRACT

Background

Heterotopic bone formation has been reported in malignancies involving the kidneys, liver, breast, and skin. Ossification in the gastrointestinal tract is extremely rare; nevertheless, it has been reported in association with benign colonic polyps, carcinomas, carcinoid of the stomach and with mucocele of the appendix. In 1923, Hasegawa was the first to describe two cases of rectal carcinoma with bone formation in the stroma. In 1939, Dukes was the first investigator in the English literature to describe ossification of primary rectal carcinoma in two cases.

Aim

Our study was triggered when we had a case of heterotopic ossification in caecal cancer aiming at highlighting such an uncommon finding in colorectal tumours and not to be mistaken with direct bone invasion of the tumour.

Methods

Literature Search was performed via two search engines first is MEDLINE from the year 1946 to week 3 of September 2015 and second is EMBase from 1980 to week 39 of the year 2015. Search was narrowed to a relevant 50 papers, abstracts of the 50 papers read, 12 were excluded as it was not relevant, 11 excluded as they were about Heterotopic ossification in Colorectal Metastasis either liver or lung metastasis, 1 excluded as it was mainly about Heterotopic ossification as a postoperative complications following orthopedic surgery, 3 were excluded as they were duplicates from the 2 search engines and the full text of the relevant 25 papers were obtained, read and analyzed.

Results

Overall 28 patients with heterotopic ossification were found in the literature, 18 of which were rectal lesions. 14 showed histopathology of adenocarcinoma, 3 inflammatory polyps and 1 as extra skeletal osteosarcoma, 3 were caecal including our case, 2 of which were adenocarcinoma and the third case was reported as granular cell tumour, 2 were in the ascending colon. Both were adenocarcinoma, 1 in the appendix. Adenocarcinoma, 1 in the left colon. High grade dysplasia with foci of adenocarcinoma and 1 was in the sigmoid colon. Tubular adenoma with mild dysplasia.

Conclusion

Heterotopic ossification in primary colorectal lesions is a rare lesion and can happen in association with different colorectal pathologies. They need to be carefully diagnosed so they are not mistaken with direct bone invasion.

CONTACT

Mr. Mahmoud Abdeldayem
Prince Charles Hospital – UK
Email: mahmoud122@hotmail.com
Mahmoud.abdeldayem@wales.nhs.uk
Phone: 00447909994298

BACKGROUND

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METHODS AND MATERIALS

Literature Search was performed via two search engines first is MEDLINE from the year 1946 to week 3 of September 2015 and second is EMBase from 1980 to week 39 of the year 2015. Search was narrowed to a relevant 50 papers, abstracts of the 50 papers read, 12 were excluded as it was not relevant, 11 excluded as they were about Heterotopic ossification in Colorectal Metastasis either liver or lung metastasis, 1 excluded as they were mainly about Heterotopic ossification as a postoperative complications following orthopedic surgery, 3 were excluded as they were duplicates from the 2 search engines and full text of the relevant 25 papers were obtained, read and analyzed.

RESULTS

Author	Patient's age	Gender	Site of lesion	Histopathology	Procedure
Mark J Wilsher	66	F	Left colon	HGD with foci of adenoCA	limited AR
AL Daraji et al	85	F	sigmoid colon	TA with mild dysplasia	Polypectomy
Al-Maghrabi et al	90	F	Rectum	Adenocarcinoma	low AR
Matsumoto et al.	67	M	Rectum	Adenocarcinoma	low AR
Kypson et al	38	F	Rectum	Adenocarcinoma	AP resection
Haque et al.	78	M	Rectum	Adenocarcinoma	AP resection
Dukes	69	M	Rectum	Adenocarcinoma	Perianal resection
Dukes	32	F	Rectum	Adenocarcinoma	AP resection
Ansari et al	54	F	Rectum	Adenocarcinoma	low AR
Urban Ke	55	F	Rectum	Adenocarcinoma	AP resection
Christie	44	F	Rectum	Adenocarcinoma	AP resection
Byard et al.	72	M	Rectum	Adenocarcinoma	Unknown
Fiona McPherson et al	73	M	caecal polyp	TVA with foci of HGD and bone trabeculae	Polypectomy
Nobuhiro Imai et al	50	F	Ascending colon	Adenocarcinoma	Right hemicolectomy
H. terry VanPatter and J.W. Whittick	43	M	Rectum	Adenocarcinoma	AP resection
	58	M	Rectum	Adenocarcinoma	AP resection
Haque et al	46	F	Caecum	Adenocarcinoma	Right hemicolectomy
	55	F	Appendix	Adenocarcinoma	Right hemicolectomy
Ran Hong and Sung Chul Lim	56	M	Caecum	Granular cell tumour	Laparoscopic myotomy
Iannaci G et al	81	M	Rectum	1ry extraskeletal osteosarcoma	AP resection
Szumilo J et al	79	M	Rectum	Adenocarcinoma	Unknown
Alper M. et al	56	M	colon	Adenocarcinoma	Unknown
Sato Y et al	62	M	Ascending colon	Adenocarcinoma	Right hemicolectomy
Pajak J et al	69	M	Rectum	Unknown	Unknown
Brian R Odum	74	M	Rectum	Inflammatory polyp	Snare polypectomy
Ebru Zemheri et al.	9	M	Rectum	Inflammatory polyp	Polypectomy
Yusuhiro Oono et al	39	M	Rectum	Inflammatory polyp	Polypectomy
M. Abdeldayem et al	85	F	Caecum	Adenocarcinoma	Right hemicolectomy

Table 1: Literature search results..

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CONCLUSIONS

Heterotopic ossification in primary colorectal tumours is a rare lesion and can happen in association with different colorectal pathologies. They need to be carefully diagnosed so they are not mistaken with direct bone invasion.