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Original Research Article

Study of correlation of histopathology of colorectal carcinoma with cytopathology

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Abstract: This study was designed to investigate the frequency of the association between colorectal cancer and peritoneal cytology as well as the impact of surgical resection on conversion of cytology from benign to malignant cells being present. Furthermore, increasingly frequent reports of port site recurrences with laparoscopic colectomy for limited stage colon carcinoma prompted us to evaluate the incidence of tumor cell spillage with traditional "open" colonic surgery. The value of peritoneal washing cytology on prognosis is not clear yet. The aims of our prospective study were to consider the incidence and prognostic value of peritoneal cytology and to correlate with histopathology of colorectal carcinoma in patient underwent hemicolectomy surgery.
Keywords: colorectal cancer, peritoneal fluid cytology, histopathology of colorectal carcinoma

INTRODUCTION:

The success of surgical treatment in patients with gastric and colorectal cancer is often limited. This is because of local recurrence or the development of distant metastases or peritoneal carcinosis by cells that have already been seeded at the time of operation but can be detected using conventional diagnostic tools [1]. The elimination of these micro metastatic cells is the aim and obviously it would be helpful to detect minimal residual disease [2]. Using conventional cytology methods, which are significantly more sensitive. To detect disseminated tumor cells in the cytology. Fnac of patients with breast cancer, bronchial lavage in small cell lung Supported by the Deutsche Krebshilfe e.V., Germany and the P. Bluemel. Address reprint requests to Hartmut Juhl, Department of Surgery, University Hospital Kiel, Arnold-Heller Str. 7, D-24105 Kiel, Germany [3]. Accepted for publication August 14, 1997. 372 Results although positive results in the conventional cytology showed little prognostic significance, the peritoneal cavity results correlated with the 3-year survival rate (gastric cancer: $p = 0.0038$; colorectal cancer: $p = 0.0079$). Additionally, in subgroups of patients with early (gastric cancer: $p = 0.02$, colorectal cancer: $p = 0.48$) and advanced (gastric cancer: $p = 0.02$, colorectal cancer: $p < 0.0001$) tumor stages [4], The high frequency of intraperitoneal tumor relapse and peritoneal carcinosis strongly suggests that micro metastatic cells are most likely present within the peritoneal cavity. Previously, we showed that disseminated cancer cells become specifically detectable in the peritoneal cavity of patients with gastric, colorectal, and pancreatic cancer [5]. It was shown that at the time of the operation, tumor cells occur with high frequency in the peritoneal cavity [6]. In this study a correlation was made with conventional cytology and histopathology of colorectal carcinoma. We showed that tumor cells were frequently detectable in the peritoneal cavity. Their occurrence in the peritoneal cavity correlated to a highly significant degree with the postoperative survival rate of colorectal and gastric cancer patients.

MATERIAL AND METHODS

From 2013 to 2015 washing cytology was performed in 30 patients who underwent surgery for colorectal cancer. Before exploration and manipulation of the tumor, each of the peritoneal cavities next to the tumor site, sub hepatic and rectovesical recesses, were irrigated with 50 mL saline, and then the aspirates were taken for cytological evaluation. Peritoneal lavage was performed before manipulation of the tumor [7].The lavage solution was centrifuged (1200 g for 10 minutes).or ascitic fluid from the patient or FNA from the patient taken. The microscopic evaluation was carried out independently by two investigators who were unaware of the patient data [8]. Evaluation of Data Samples was evaluated as positive for tumor cells. The detection rate was correlated with the tumor stage and the classification. After surgery, patients were examined

either in our outpatient clinic or by their general practitioner.

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RESULTS:

30 patients (90%) were found to have malignant cytology, all five positive cytologies were associated with stage IV disease and poorly differentiated colon cancer.20 (90.7%) of 30 patients had positive cytology. Although necrosis, depth of invasion, differentiation of the tumor, macroscopic peritoneal dissemination, and ascites / peritoneal lavage were correlated with histopathology of the patient who are positive for cytology; multivariate analyses revealed the depth of invasion, presence of necrosis, and differentiation of the tumor as the factors affecting the cytology [9]. The correlation of histopathology of colorectal carcinoma with cytology show sensitivity of 92.34% and specificity of 90.34% with respectively (P > .05).p value p=0.03. From this study cytopathology study has a prognostic value in diagnosis and treatment in colorectal carcinoma

DISCUSSION

Cytology has become the technique of choice for both the diagnosis and staging of GI malignancies. For GI tract lesions, cytology is particularly helpful in identifying the origin of the lesion [10].whether it arises in the wall or is caused by an extrinsic lesion compressing the GI lumen. Conventional cytology also can identify the layer of the bowel wall from which the lesion arises, and it provides information on the extent of the lesion [11]. However, definitive differentiation between benign and malignant lesions usually is possible using by cytology. Consequently, tissue sampling often is required to establish a conclusive diagnosis [12].

The use of peritoneal / ascitic / fna has proven to be successful in the evaluation of pancreatic masses and lymphadenopathy [13]. However, only a few studies published to date have focused specifically on evaluating the use of -FNA in GI tract lesions. Those studies, as well as others that included pancreatic lesions and lymphadenopathies, found that -FNA was less useful in the diagnosis of GI tract lesions, and particularly sub mucosal tumors [14, 15]. A multicenter study that included a series of 115 GI tract lesions reported that the sensitivity, specificity, and accuracy of FNA in diagnosing neoplastic GI tract lesions were 88%, 81%, and 87%, respectively.

In the current report, we have detailed our experience with 30 GI tract lesions evaluated by peritoneal/ ascetic/ fna at our institution. The overall sensitivity and specificity in diagnosing GI tract neoplasms were 92.34% and 90.34%, respectively, and the diagnostic accuracy was 92% [16, 17, 18]. When specimens with suspicious cytologic diagnoses were classified as being positive for malignancy, the sensitivity and specificity became 92% and 90%, respectively, and the diagnostic accuracy improved to 92%.(in figure 1.1, 1.2, 1.3, 1.4, show ascetic fluid in colorectal carcinoma patients and histopathology images 1.5,1.6,1.7,of colorectal carcinoma of the same patients) It is noteworthy that the results of the current study were better than those reported in the literature [19]. The current study illustrates the value of having a cytopathologist on site to determine specimen adequacy .GIST may be one of the most diagnostically challenging lesions encountered in FNA/ peritoneal of GI tract lesions [20]. GIST accounted for 2 of the 5 misdiagnosed specimens in the current series; furthermore, a significant proportion (42%) of the neoplasms diagnosed was GISTs. Some have dismissed the use of FNA for the diagnosis of GIST. One author commented that because of the fibrosis and firmness of GIST, which requires substantial force for penetration, it may be difficult to obtain cytologic material via aspiration [21]. Others have reported success in diagnosing GIST when combining cytologic and histological method low, which was the case in one specimen that yielded a false-negative result in the current study. In contrast, high-grade GIST should be distinguished from poorly differentiated carcinoma

In conclusion, Furthermore, this procedure is particularly useful in patients for whom previous diagnostic procedures were unsuccessful.

Table-1 summarizes the relation between the original cytologic diagnosis and follow-up histologic/clinical diagnoses. The overall sensitivity, specificity, and diagnostic accuracy of peritoneal/FNA/ascetic fluid for GI tract neoplasms were 89%, 88%, and 89%, respectively. When specimens with suspicious cytologic diagnoses were considered to be positive for malignancy, the sensitivity and specificity of peritoneal/ascetic/FNA in diagnosing GI tract lesions became 96% and 81%, respectively, and diagnostic accuracy improved to 92%

Table-1:Correlation of histopathology with cytology

Cytologic diagnosis	**Follow-up tissue/clinical results**		**Total**
	Positive	**Negative**	
Positive for neoplasm	20	5	25
Suspicious for neoplasm	3	3	6
Reactive or nonneoplastic process	0	2	2
Total	23	10	33

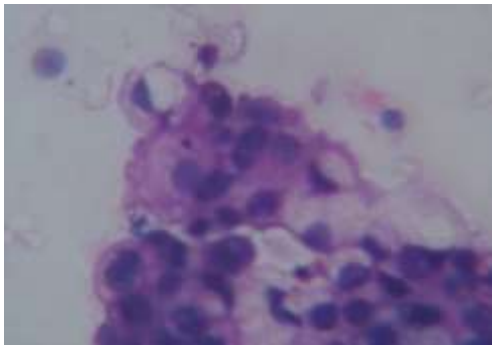

Fig 1: Ascitic fluid picture showing positive foe malignancy

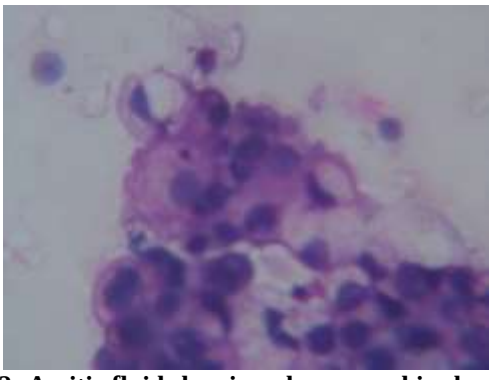

Fig 2: Ascitic fluid showing pleomomorhic changes in nucleus,

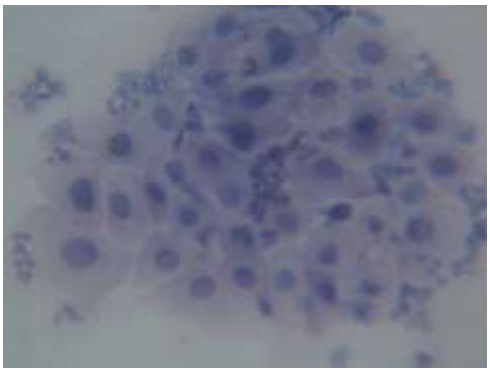

Fig 3: ascitic fluid showing inflammatory cells with malignant cells

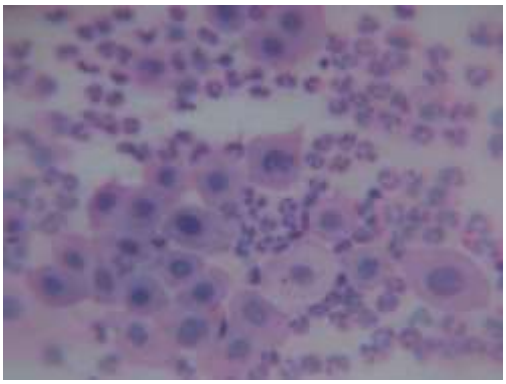

Fig 4: Ascitic fluid showing inflammatory cells

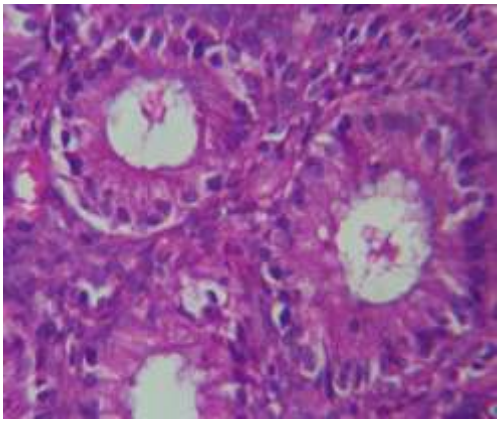

Fig 5: histopathology picture of colorectal carcinoma

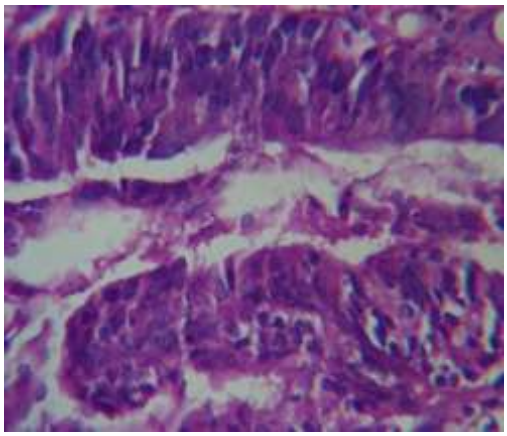

Fig 6: histopathology picture of colorectal carcinoma with malignant changes

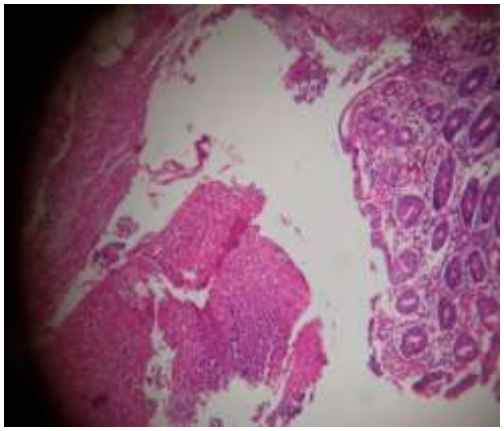

Fig 7: histopathology picture of colorectal carcinoma extending into sub mucosa

CONCLUSION:

The presence of free malignant cells in the peritoneal cavities / ascitic fluid of patients colorectal cancer provides further prognostic value over the current staging systems in colorectal carcinoma and for further treatment for the patient and our observations suggest that FNA/ perionial fluid / ascetic fluid is a reliable and accurate procedure with favorable

sensitivity and specificity in the diagnosis of neoplastic GI tract lesions.

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