February 1991

Clinical features and management of malignant ascites

I Malik
Aga Khan University

S Abubakar
Aga Khan University

I Rizwana
Aga Khan University

F Alam
Aga Khan University

J Rizvi
Aga Khan University

See next page for additional authors

Authors
I Malik, S Abubakar, I Rizwana, F Alam, J Rizvi, and A Khan

CLINICAL FEATURES AND MANAGEMENT OF MALIGNANT ASCITES

Pages with reference to book, From 38 To 40

Imtiaz Malik, Saleem Abubakar, Feroz Alam, Ata Khan (Department of Medicine, The Aga Khan University, Karachi.)
Iffat Rizwana, Javaid Rizvi (Department of Obstetrics-Gynaecology, The Aga Khan University, Karachi.)

ABSTRACT

Retrospective analysis of 45 patients (33 females, 12 males) with cytologically-proven malignant ascites is presented. Abdominal pain was the most frequent symptom (69%). Fifty three percent cases had low serum albumin. Ascitic fluid was haemorrhagic or serosanguinous in 48% cases, in the rest it was clear or straw-coloured. Peritoneal effusion was exudative in 84% cases. Mean glucose content of ascitic fluid was 95 mg/dl and the mean white cell count of 919 cells/cmm. Vast majority (82%) of the cases had metastatic adenocarcinomas. Primary malignancy was mostly ovarian (47%) followed by non-Hodgkin's lymphoma (11%) and gall bladder carcinoma (9%). Primary site could not be identified in 13% cases. Sixty-two percent patients received systemic chemotherapy for the underlying malignancy, of these 43% had complete or partial resolution of the acsites. Of the patients whose long-term follow-up is available, 54% were alive with a median follow-up of 9 months (JPMA 41: 38, 1991).

INTRODUCTION

Development of ascites is a frequently encountered clinical problem in oncologic practice. Ascites may be the presenting feature or it may develop in the setting of prior diagnosis of cancer. In patients suffering from cancer, ascites could develop due to many causes, both neoplastic and non-neoplastic[1]. The diagnosis of malignant ascites depends upon the demonstration of neoplastic cells in the peritoneal fluid. Major pathogenetic mechanisms that contribute to the development of malignant ascites include increased capillary permeability, increased venous pressure, decreased plasma oncotic pressure due to hypoalbuminaernia and lymphatic obstruction by malignant cells[2,3]. Ascitic fluid in malignant ascites is mostly exudative (75%) and often bloody or serosanguinous, with a white cell count of more than 250 cells/cnun and LDH content more than fifty percent of the serum values[4]. Most of the studies report ovarian cancer as the commonest underlying malignancy[5-8]. Although many studies have been reported in the oncolop literature from European and American institutions[4-8] , paucity of these data from third world countries prompted us to analyze patients who had cytologically proven malignant ascites. We studied the clinical presentation, èharacteristic of the ascitic fluid, type of underlying malignancy and the subsequent management and survival of these patients and compared our data to those reported by others[4-8].

PATIENTS AND METHODS

Cases were selected from ascitic fluid analyses performed over the last two years. Only patients with cytologically proven malignant ascites were eligible for this study. On a preset format, information was collected regarding the clinical features at the time of presentation, presence of other causes of ascites, and blood investigations including complete blood counts, LDH and serum albumin. Characteristics of ascitic fluid such as physical appearance, protein content, glucose and LDH levels and WBC counts were noted. Cytological confirmation was done in all cases. Origin of the cancer was ascertained from

review of clinical findings and the pathological material that was available. Management, response and follow-up were obtained from the case record.

RESULTS

Forty-five patients were eligible for study. The clinical features are presented in Table I.

Table I. Clinical features of cases with malignant ascites.

CLINICAL FEATURES	
Sex	
Male	12 (27%)
Female	33 (73%)
Age	
Mean	50.6 years
Range	4-80 years
Signs & Symptoms	
Abdominal distension	45 (100%)
Abdominal pain	31 (69%)
Vomiting	15 (33%)
Fever	8 (18%)
Intestinal obstruction	7 (15%)
Pleural effusion	13 (29%)
Ascites as the presenting feature	27 (60%)
Other pre-existing diseases	
Cardiac failure	5 (11%)
Tuberculosis	1 (2%)
Renal failure	4 (9%)
Liver disease	2 (4%)

Majority of the patients were females (73%) and the median age was 50.6 years. Sixty percent had ascites as the presenting features of their disease, in the remainder it developed later on. Abdominal pain was the commonest presenting symptom (69%). Associated pleural effusion was present in 29% patients. Many patients (26%) had some other underlying disease that could have caused ascites. Haematological and biochemical profile is shown in Table II.

Table II. Haematological and Biochemical Profile.

LABORATORY FEATURES	
Blood	
Haemoglobin (<10g/dl)	13%
Albumin (< 3.0g/dl)	53%
LDH	
mean	1057 IU/L
range	349-2263 IU/L
Ascitic fluid	
Appearance	
Clear or straw-colored	52%
Bloody or serosanguinous	48%
Protein (> 3.0 g/dl)	84%
LDH	
mean	914 IU/L
range	143-2040 IU/L
Glucose	
mean	95 mg/dl
range	10-172 mg/dl
WBC count	
mean	919/cmm
range	130-4842/cmm
Cytology	
Adenocarcinoma	82%
Others	18%

Only 13% patients were anaemic with none having leucopenia or thrombocytopenia. Fifty three percent had low serum albumin while majority had raised LDH levels Fluid was clear or straw-coloured in 52% cases, it was mostly exudative (84%)with a high LDH content. Cytologic analyses were suggestive of adenocarcinoma in 82% cases.

Table.III. Primary tumor site and follow-up.

PRIMARY TUMOUR	
Ovarian	21 (47%)
Unknown primary	6 (13%)
Lymphoma	5 (11%)
Gall bladder	4 (9%)
Colo-rectal	2 (5%)
Pancreas	1 (2%)
Hepatoma	1 (2%)
Endometrium	1 (2%)
CLL	1 (2%)
Teratoma (ovarian)	1 (2%)

Table III indicated that ovarian cancer was the underlying cause of malignant ascites in 47% of the cases followed by adenocarcinoma of unknown primary, lymphoma and gall bladder carcinoma. Sixty-two percent of the patients received systemic chemotherapy for the underlying malignancy while rest either refused treatment or received supportive care only. Of those who received chemotherapy, 43% had complete remission or significant regression of ascites. Fifty four percent patients are still alive with a median follow-up of nine months, 17% of them have no evidence of disease, 46% cases have died.

DISCUSSION

Malignant ascites is a frequently encountered clinical problem that continues to offer considerable difficulty in diagnosis and management. Proper diagnosis requires the demonstration of malignant cells in the peritoneal fluid. Our study indicates that malignant ascites is more commonly observed in the elderly (mean age 50.6 years) and females (73% of all cases).The patients most often present with abdominal pain (69%) and abdominal distension (100%). In this study, 60% patients presenting with ascites had no prior diagnosis of malignancy and many of them had other underlying diseases that could have contributed to the development of ascites. Hence, it is important to properly investigate and consider the possibility of malignancy as the underlying cause of ascites even in the patient who may have some other obvious reason for developing ascites. Majority of our patients had no underlying haematologic abnormality except for anaemia (13%), however more than half had severe hypoalbuminaemia probably suggestive of poor nutritional status as well as loss of albumin into the

peritoneal space. It is important to appreciate that clear or straw-coloured appearance of ascitic fluid does not rule out malignancy. Almost half (52%) of the cases had clear or straw-coloured fluid. Others have made similar observations[4-8]. Similarly, although uncommon, malignant ascites can be transudative in some cases. Our ascitic fluid cell counts and LDH values are comparable to those reported elsewhere[4]. It was observed that high values of LDH were mostly seen in the patients who had lymphoma as the underlying malignancy. Carcinoembryonic antigen (CEA) levels greater than 12 mg/dl are reportedly pathognomonic of malignant ascites[9] but such analysis was not performed on any of our samples probably because of the cost of the test as well as lack of awareness of the significance of CEA levels in the ascitic fluid. A variety of tumours have been associated with the development of malignant ascites. In more than 70% of the cases, primary tumour is intra-abdominal. Ovarian, endometrial, breast, colonic, gastric and pancreatic carcinomas account for over 80% of the cases[5-8]. In one study breast cancer was the commonest cause of malignant ascites[10] while in others ovarian cancer is the commonest underlying neoplasm[4-8]. Primary site may remain unknown in 25% cases[10]. . In our study ovarian tumour was the commonest underlying neoplasm. As compared to other studies, lymphoma and gall bladder cancer are more commonly associated with malignantascites in Pakistan[6,7]. Management of malignant ascites depends upon the type of underlying malignancy. If the underlying cancer is responsive to any specific modality of treatment, such should be undertaken to control ascites. Most often it requires the use of systemic chemotherapy. Sixty-two percent of our patients received systemic chemotherapy, of these 43% responded to treatment, particularly those who had ovarian cancer or lymphoma. In others, disease was either very far advanced or generally unresponsive to any specific measures and management was purely palliative which included intra-peritoneal chemotherapy[11,12] insertion of peritoneovenous shunts[13,14] and at times repeated paracentesis. Median survival has not yet been reached and 54% of our patients are still alive with a median follow-up of 9 months. This compares favourably with the results reported by others[4-8].

ACKNOWLEDGEMENT

We thank Ms. Rozina Ameen for typing this manuscript.

REFERENCES

1. Glickman, R.M. and Isselbaher, KJ. Abdominal swelling and ascites, Harrison's principles of internal medicine. 10th ed. London, Me Graw-Hill, 1983, p. 209.
2. Fastaia, J. and Dumont, A.E. Pathogenesis of ascites in mice with peritoneal carcinomatosis. JNCL., 1976; 56: 547.
3. Feldman, G.B. Lymphatic obstruction in carcinomatous ascites. Cancer Res., 1975; 35: 325.
4. Baker, A.R Treatment of malignant ascites, in cancer principles and practice of oncology. Edited by DeVita, Heilman, Rosenberg, Philadelphia, Lippincot, 1989, p. 325.
5. Osborne, M.P. and Copeland, B.E. Intracavitary administration radioactive colloidal gold (Au198) for the treatment of malignant effusions. N.Engl. J. Med., 1956; 225: 1122.?
6. Straus, A.K., Roseman, D.L. and Shapiro, T. M. Peritoneovenous shunting in the management of malignant ascites. Arch. Surg., 1979;114: 489.
7. Willbanks, G.D., Straus, A.K., Roseman, D.L, et al. Peri toneovenous shunting in the management of refractory ascites from gynecologic malignancy. Proc. Am. Assoc. Cancer Res., 1979; 20:364.
8. Wolff, J.P., Vignier, M., Goldfarb, E. andPatri, N. Ascites in cancer of the ovary. Gynecologic, 1977; 28: 517.
9. Lowenstein, M.S., Rittgers, RA., Feinerman, A.E., et al. Car. cinoembryonic antigen assay of ascites

and detection of malignancy. Ann. Intern. Med., 1978; 88: 635.
10. Twycross, RG. and Lack, S.A. Control of alimentary symptoms in far advanced cancer. Edinburgh, Churchill Livingstone, 1986, p.282.
11. Paladine, W., Cunningham, Ti., Sponzo, R., Donavan, M., Olson, K. and Harton, J. Intracavitary bleomycin in the management of malignant effusion. Cancer, 1976; 38: 1903.
12. Anderson, A.P. and Brincker, H. Intracavitaiy thiotepa in malig. nant pleural and peritoneal effusion. Acta Radiol., 1968; 7: 369.
13. Qazi, R. and Savlov, E.D. Peritoneovenous shunt for palliation of malignant ascites. Cancer, 1982; 49: 600.
14. Reinhold, RB., Lokich, J.J., Tomashefski, J. and Costello, P. Management of malignant ascites with peritoneovenous shunting. Am. J. Surg., 1983; 145: 455.