

Clinical Spectrum of Mesenteric Vein Thrombosis

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Abstract

Introduction: Mesenteric vein thrombosis leading to bowel ischemia is associated with high mortality rate. Available literature to explore its etiology, prognosis and management is scarce. There has been an increase in diagnosis of this condition over the past few years and the factors which have led to this change needed to be studied.

Objectives: To determine the frequency of mesenteric venous thrombosis.

To report clinical presentation, management and outcomes of patients suffering from mesenteric vein thrombosis.

Materials and Methods: It is an audit of patients presenting with diagnosis of mesenteric vein thrombosis, over a period of twenty years from 1995 to 2015. Medical records were extracted using hospital information management system and relevant data was gathered on a specifically designed questionnaire. Arterial causes of ischemia and those with incomplete records were excluded. Analysis was done using SPSS version 19. P value < 0.05 was considered to be significant.

Results: A total of 43 patients met inclusion criteria. Mean age was patients was 50 years. Abdominal pain was the most common (88.3%) presenting complaint. Only 14 (32.5%) patients presented within 72 hours of symptoms onset. Most common underlying risk factor was hypercoagulable state due to combine protein C and S deficiency. Non operative management with anticoagulation alone was successful in 28 (65.1%) patients, while the rest underwent surgical intervention. Overall 30 day mortality in non-operative group was 3 (10.7%) while in surgical intervention group it was 5 (33.3%). Those who presented within 72 hours of symptoms onset required surgical intervention more often at proportion of 71.4% as compared to only 17.2% of those who presented more than 72 hours after symptoms onset (Chi-square test, p value < 0.05). Mortality rate of patients who presented earlier was also significantly higher than those who presented late (50% vs 6.9%, Fischer Exact Test, p value < 0.05).

Conclusion: Mesenteric venous thrombosis is associated with high mortality. Combined Protein C and S deficiency being the main risk factor along with lethal nature of disease warrants long term anticoagulation therapy.

Keywords: Mesenteric venous thrombosis; Bowel; Anticoagulation; Mortality

Introduction

Mesenteric Venous Thrombosis (MVT) was first reported by Elliot et al in 1895 [1]. It was later reported by Warren and Eberhard in 1935, who were the pioneers to differentiate mesenteric venous thrombosis from mesenteric arterial thrombosis as a cause of mesenteric ischemia [2]. Incidence of mesenteric venous thrombosis is very low with reported rates from autopsy studies to be 0.2-2%, 0.01% of all emergency admissions and 5-15% of all mesenteric ischemia patients [3]. It has very high thirty day mortality rate, which has been reported to be up to 26%. Long term survival is also dismal being 36% at three years versus 86% for chronic diseases [4]. On account of underlying aetiology, the disease is classified as primary if there is no identifiable cause or secondary if source of the problem is identified for example some prothrombotic state.

Pathogenesis leading to bowel ischemia after mesenteric venous thrombosis involves occlusion of vein resulting in bowel wall edema. Elevated hydrostatic pressure ultimately impedes the arterial flow and causes hypoxia of the bowel resulting in ischemia [5]. The most common vein involved is the superior mesenteric vein and the most common anatomic site involvement is the ileum followed by jejunum, colon and duodenum [5]. The disease is classified as acute if patient presents within 72 hours of symptoms onset, sub-acute if presentation is within 4 weeks, and chronic if 4 months has elapsed since symptoms onset [6]. Typically patients in acute phase present with abdominal pain that is out of proportion to the physical signs [7]. CT scan is the most commonly used modality to diagnosis MVT. It has relatively poor sensitivity of 70-90% but high specific being close to 100% [8].

Non operative management is recommended if there is no evidence of bowel infarction. Early start of anticoagulation is known to increase the survival rate. Patients with signs of peritonitis require emergency surgery due to high risk of underlying bowel gangrene [9]. Second relook laparotomy procedure is useful in patients who have questionable ischemia upon first laparotomy [10]. As there is scant literature regarding presentation and outcome of the disease, we planned to review data to report on this.

Objectives

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Materials and Methods

Study Design

We report audit of our experience of dealing with mesenteric venous thrombosis and ischemia.

Study Settings

The study was conducted at the Aga Khan University Hospital (AKUH) Karachi. AKUH is a 500 bed tertiary care hospital in largest city of Pakistan where patients from all over the country and abroad come for their treatment. It has a general surgical unit comprising of eight general surgeons.

Selection Criteria

All adult patients of age more than 16 years who presented at AKUH with diagnosis of mesenteric venous thrombosis from 1995 to 2015 were included in the study. Those with concomitant arterial occlusion, transferred out and those with incomplete records were excluded from the study.

Data Collection Procedure

Medical records were retrieved using International Classification of Diseases (ICD) coding for mesenteric venous thrombosis and mesenteric venous ischemia. Data were retrieved on specifically designed questionnaire that comprised of demographic and clinical details related to presenting features, work up, management and outcome of the disease.

Statistical Analysis

Data was entered and analyzed using SPSS version 19 [11]. Qualitative variables are reported as numbers, proportions and percentages while quantitative variables are reported as means +/- standard deviations. Association of need of surgery and mortality with timing of presentation is tested using Chi-square test and Fischer exact test respectively. P value less than 0.05 is considered statistically significant.

Results

A total of 43 patients met inclusion criteria during study period and were included in the study. Median age of patients was 50 years with range from 20 to 90 years. There was male predominance with 32 (74.4%) patients being males. A gradual increase over time in number of cases presenting to us with diagnosis of mesenteric venous thrombosis was witnessed with half of the cases presenting in last 5 years. Abdominal pain was the most common (88.3%) presenting complaint. Other symptoms included vomiting, diarrhea and abdominal distension which were present in 10, 10 and 12 patients each in various combinations. Only 14 (32.5%) patients presented within 72 hours of symptoms onset. CT scan was done in 38 (88.4%) of patients to diagnose mesenteric venous thrombosis. In rest of five patients diagnosis was made solely intra-operatively as their clinical condition did not allow CT scanning. Portal vein was involved in 80% (30) of those who underwent CT scan. Isolated superior mesenteric vein thrombosis was seen in 7 patients and one patient clot in tributaries of SMV only. Most common underlying risk factor was hypercoagulable state due to combine protein C and S deficiency. It was present in 8 (18.6%) patients. It was followed by malignancy and polycythemia which accounted for 5 (11.6%) and 3 (7.0%) cases respectively. In majority of patients (51.2%) no risk factor was identified hence were labeled as primary MVT.

Non operative management with anticoagulation alone was successful in 28 (65.1%) patients as evidenced by clinical improvement of the patients' condition, while the rest of patients underwent surgical intervention. Deterioration of clinical condition despite therapeutic anticoagulation and development of signs of peritonitis were the most common indications

of surgical intervention, present in 7 and 8 patients respectively. Overall 30 day mortality in non-operative group was 3 (10.7%) while in surgical intervention group it was 5 (33.3%). We found that those who presented within 72 hours of symptoms onset required surgical intervention more often at proportion of 71.4% as compared to only 17.2% of those who presented more than 72 hours after symptoms onset (Chi-square test, p value < 0.05). Mortality rate of patients who presented early was also significantly higher than those who presented late (50% vs 6.9%, Fischer Exact Test, p value < 0.05). Details are as given in Table 1.

All the patients who survived and discharged from hospital were followed in clinic. Interval CT scan was only done for patients having persistent residual symptoms.

Discussion

Hypercoagulable state due to combine protein C and S deficiency was the most common risk factor identified for mesenteric venous thrombosis. This finding corroborates with the findings of other authors who also demonstrated similar risk profile in patients suffering from mesenteric venous thrombosis [12]. Though no long term results are available regarding duration of use of anticoagulation in patients suffering from mesenteric venous thrombosis, considering high risk of mortality and non-modifiable nature of the risk factor, these patients warrant lifelong anticoagulation [5].

Two third of our patients presented more than 72 hours after symptoms onset. As we are tertiary care set up where patients are referred from all over the country and abroad, these findings are explained as many of these would have been referred after initial management at the first point of care. Moreover severity of problem results in early mortality which might also have resulted in this picture as a fraction of patients might not have been stable enough to make transfer early in the course of illness.

Our results demonstrate that mesenteric venous thrombosis is highly lethal condition with mortality rate of 18.6%. Other reports from various parts of the world have also shown similar findings. Acosta et al reported a mortality rate of 20% [3] while Gifford et al reported it to be up to 23% [9]. High mortality rate and need of surgery in group of patients who presented early in the course of their illness could be due to severity of disease itself and not related directly to the timing of presentation. We did not have enough data to compare severity of illness in two groups, but literature suggests that early mortality in mesenteric venous thrombosis is high and in those who survive more than 72 hours hazard of mortality is reduced with time [13].

Based on our experience we propose following algorithm as given in figure 1, for the work-up and management of patients with mesenteric vein thrombosis.

Conclusion

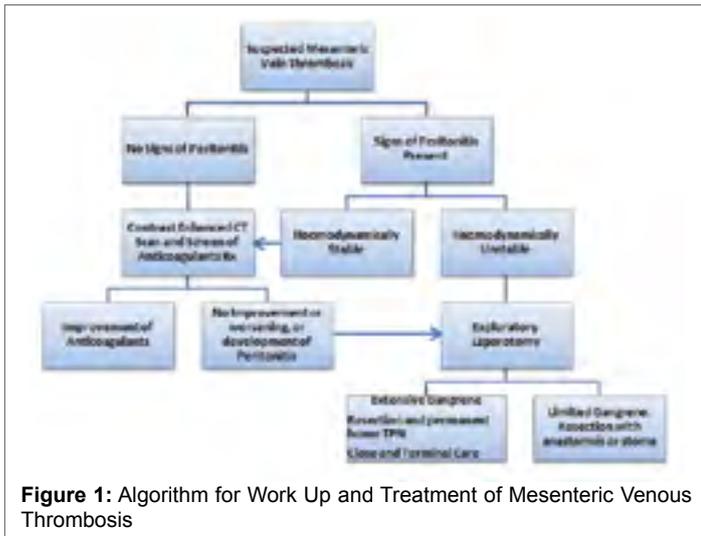
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Table 1: Comparison of Need Surgical Intervention and Mortality in patients who presented within 72 hours of symptoms onset as compared to those who presented after 72 hours

Presentation	Early (Within 72 Hours) N = 14	Late (After 72 Hours) N = 29	P Value
Surgical Intervention	10 (71.4%)	5 (17.2%)	< 0.001*
Mortality	7 (50%)	2 (6.9%)	0.011#

*Chi-square Test

#Fischer Exact Test



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