Department of Surgery 2026 Research Day
2026 Research Day
6th May 2026 (Wednesday) | 7 am – Noon | MART Auditorium

Title: Ruptured Primary Mycotic Abdominal Aortic Aneurysms: A Systematic Review of the Literature

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Background:
Mycotic abdominal aortic aneurysms (MAAA) are rare, infection-related aneurysms associated with high rates of rupture, morbidity, and mortality. Existing data are largely limited to case reports and small series. We conducted a systematic review to characterize patient demographics, clinical features, management approaches, and outcomes in ruptured primary MAAA.

Methods:
A systematic literature search of PubMed, Web of Science, and EMBASE was conducted using the terms (“abdominal aortic aneurysm”) AND (“mycotic” OR “infected”) AND (“rupture” OR “ruptured”). A total of 492 articles were identified. Titles and abstracts were screened for relevance, followed by full-text review. Exclusion criteria included duplicate records, non-English publications, and studies not describing primary ruptured MAAA. After screening, 422 articles were excluded, leaving 70 case reports and case series for review. Reference lists from these articles (1,459 citations) were manually screened, yielding an additional 24 eligible studies. In total, 94 publications comprising 98 patients were included for analysis of demographics, aneurysm characteristics, management strategies, and outcomes.

Results:
Among 98 patients with ruptured primary MAAA, 84 (86%) were male and 14 (14%) were female, with a mean age of 58 years. The most common comorbidities were hypertension (26%) and diabetes mellitus (20%). Common presenting symptoms included back pain (54%), abdominal pain (50%), and fever (45%). On physical examination, 55% of patients were febrile, 41% had abdominal tenderness, and 30% had a palpable pulsatile mass, while only 13% presented with hypotension. Leukocytosis was present in 57% of patients.

Diagnosis was most commonly established by computed tomography or computed tomography angiography in 68% of cases, with aneurysms predominantly located in the infrarenal aorta (84%). The most frequently isolated pathogens were *Salmonella* species (28%) and *Staphylococcus* species (18%). Most patients underwent open surgical repair (79%), while endovascular treatment was infrequently performed (6%). Overall in-hospital mortality was 32%.

Conclusion:
Ruptured primary MAAA predominantly affect male patients and are most commonly infrarenal, with *Staphylococcus* and *Salmonella* species as the leading pathogens. Classic features of fever, pain, and a pulsatile abdominal mass were frequently observed; however, presentations were often nonspecific, and hypotension was uncommon despite rupture. Management most often required open surgical repair. The high in-hospital mortality observed highlights the aggressive clinical course of ruptured MAAA and underscores the importance of early recognition and prompt surgical management.