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Histopathological Surprises in Medico legal Autopsies - A Two Year Experience

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Abstract
Introduction: *Histopathological examination in medico-legal autopsies provides an opportunity for studying medically diagnosed diseases and natural evolution of untreated diseases. Many incidental findings have proved to be of great academic value and serve as an eye opener to the infrequent lesions which go unnoticed when a person is alive.*
Aim: *The aim of this study was to determine the spectrum of histopathological findings in medico-legal autopsies and to record interesting and unexpected pathological findings.*
Materials and methods: A retrospective analysis of internal organs in 262 medicolegal cases, received over a period of two years, was undertaken in the department of pathology, to determine the spectrum of histopathological findings and to highlight incidental lesions in autopsies.
Results: *The study consisted of a series of 262 autopsy cases. The commonest cause of death was pulmonary oedema. The most common incidental histopathological finding noted was atherosclerosis in 59 (22.5%) cases followed by fatty liver in 45 (17.1%) cases. Some rare and unexpected pathology like giant cell myocarditis, pulmonary hamartoma, double lesions (adenocarcinoma with tuberculosis), aortic dissection and broncho-pulmonary aspergillosis were encountered.*
Conclusion: *Histopathology in medicolegal autopsy plays a vital role to identify unexpected pathology including rare lesions and to detect true prevalence of various diseases.*
Keywords: *Medicolegal autopsy, Histopathology, Giant cell myocarditis, Pulmonary hamartoma, Aortic dissection.*

Introduction

The term "autopsy" is derived from the Greek word autopsia, means "to see for oneself" (Autos - oneself and Opsis - eye). Various histopathological findings unrelated to the cause of death are noticed in routine histopathological examination of medicolegal autopsies. These findings have proved to be of great academic value and serve as an eye opener to the infrequent lesions which go unnoticed when a person is alive.

The medicolegal autopsy provides an opportunity for studying not only medically diagnosed diseases, but also the natural evolution of untreated disease.

Autopsy also aids in the diagnosis of undiagnosed or misdiagnosed malignant tumours irrespective of underlying cause of death.

This study highlights the various incidental findings in medicolegal autopsies, which gain a prime importance in academic purposes.[1,2,3,4]

Materials and Methods

A retrospective study of medico-legal autopsies for a period of two years from June 2015 to May 2017 was conducted in the Department of Pathology, Rangaraya Medical College attached Government General Hospital. Internal organs in 262 medico-legal autopsies were sent for histopathological examination to the pathology department. Most of the cases comprised of heart, lungs, liver, spleen, kidneys and brain. Adequate sampling of formalin fixed tissues is followed by routine processing. Sections of 4 micron thickness are stained with H & E. Histopathological spectrum of various lesions and incidental findings were recorded. Special stains were used wherever necessary.

Results

Out of the total 262 cases, 187 (71.4%) were males and 75 (28.6%) were females. The majority of cases were between 21-40 years, constituting 122(46.5%) of the total cases (Table 1). The commonest cause of death was pulmonary oedema.

Table 1

Age group	No of cases
0-20	26 (10%)
21-40	122 (46.5%)
41-60	105 (40%)
61-80	4 (1.5%)
>80	5 (2.0 %)
Total cases	262

The most common incidental finding noted was atherosclerosis of the aorta and coronary vessels in 59 (22.5%) cases followed by fatty liver in 45 (17.1%) cases.

Table 2

Sl.No	Histopathological finding	Number of cases
1	Pulmonary oedema	120
2	Atherosclerosis	59
3	Fatty liver	45
4	Myocardial infarction	8
5	Pneumonia	5
6	Pulmonary tuberculosis	4
7	Adenocarcinoma lung	2
8	Adenocarcinoma lung + Pulmonary tuberculosis	1
9	Pulmonary hamartoma	1
10	Bronchopulmonaryaspergillosis	1
11	Bronchiectasis	1
12	Giant cell myocarditis	1
13	Myocarditis	1
14	Aortic dissection	1
15	Chronic pyelonephritis	1
16	Hypertensive nephropathy	1
17	Cirrhosis of liver	1
18	Autolysed	7
19	Negri bodies in brain	2
	Total cases	262

The incidental renal lesions were chronic pyelonephritis and hypertensive nephropathy.

Chronic pyelonephritis - 63 year female died in road traffic accident (Fig 1).

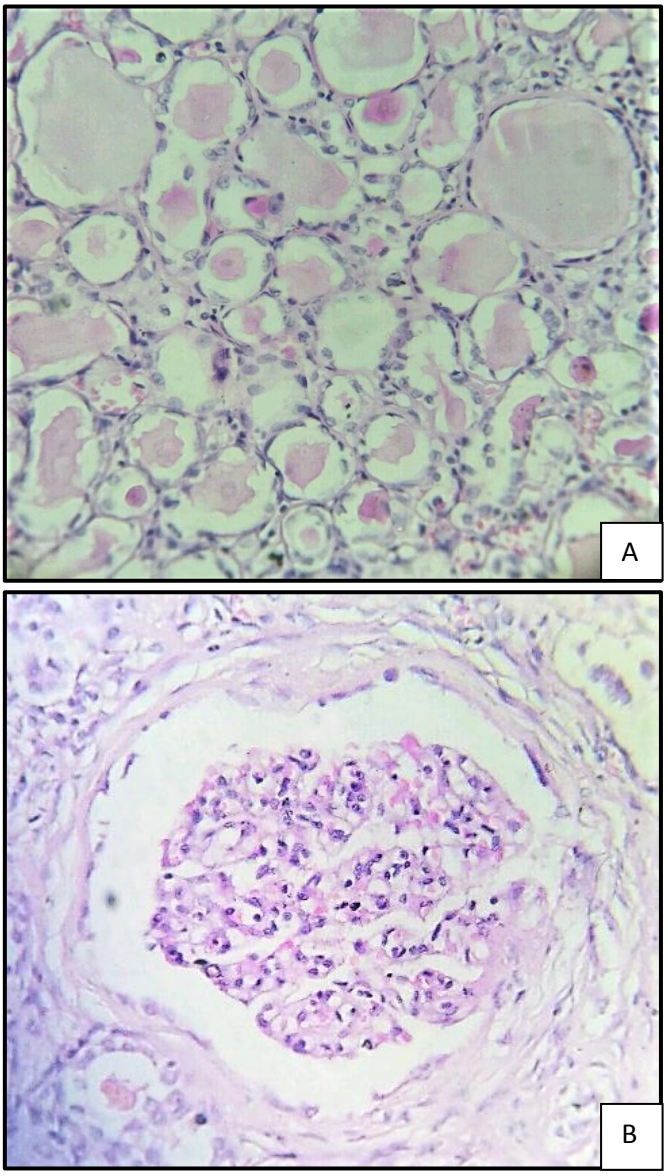


Fig 1- MLC 46/16: Chronic pyelonephritis with thyroidization of renal tubules (A); and periglomerular fibrosis (B).

Hypertensive nephropathy - 60 year male died due to snake bite (Fig 2).

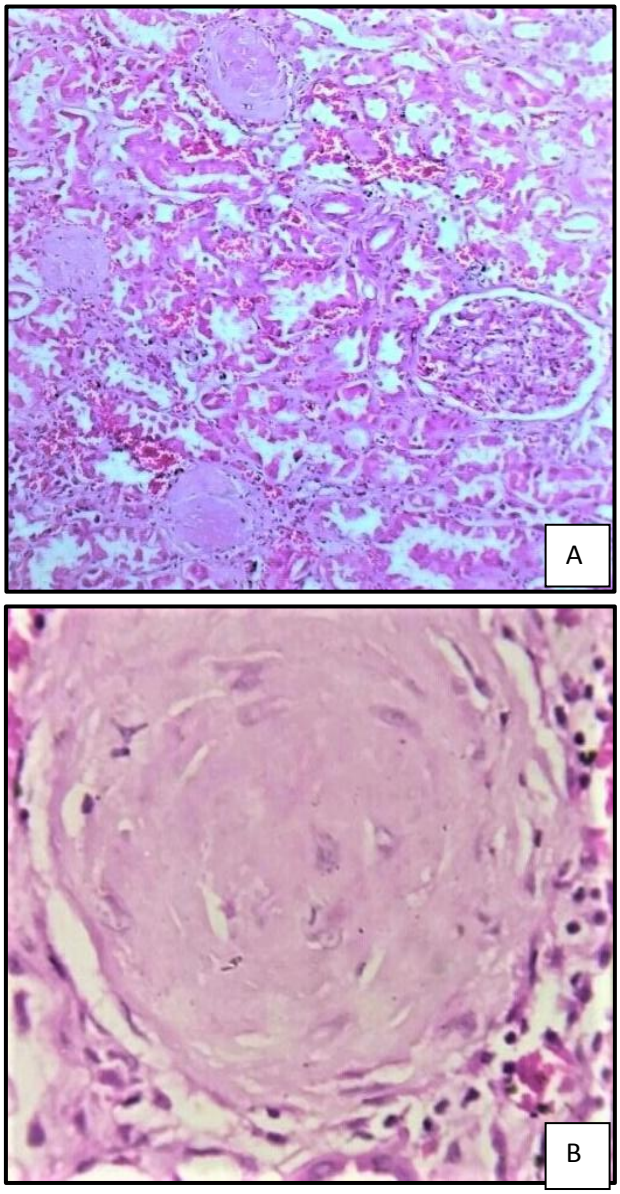


Fig 2- MLC 43/16: Hypertensive nephropathy (A); with arteriosclerosis (B).

Incidental pulmonary lesions include tuberculosis, pneumonia, broncho-pulmonary aspergillosis, pulmonary hamartoma and three adenocarcinomas with one showing double lesion with tuberculosis.

Pulmonary tuberculosis- 58 year male with unknown cause of death. Grossly, lungs showed multiple grey white areas of 0.5 cm to 1.0 cm. Histopathology revealed caseating granulomas (Fig 3).

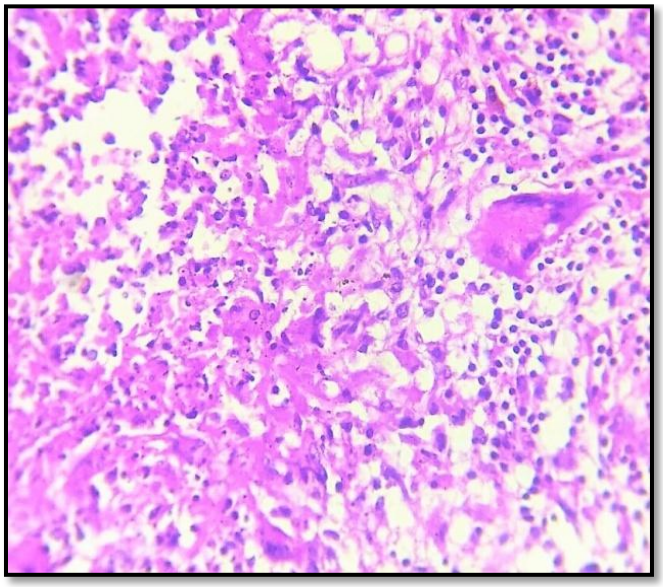


Fig 3 - MLC 78/16: caseating granulomas in lung.

Lobar pneumonia – 36 year male with unknown cause of death (Fig 4).

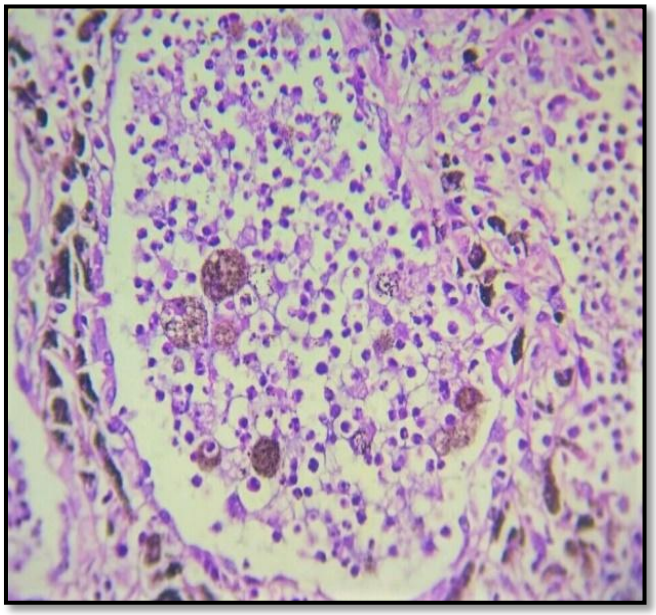
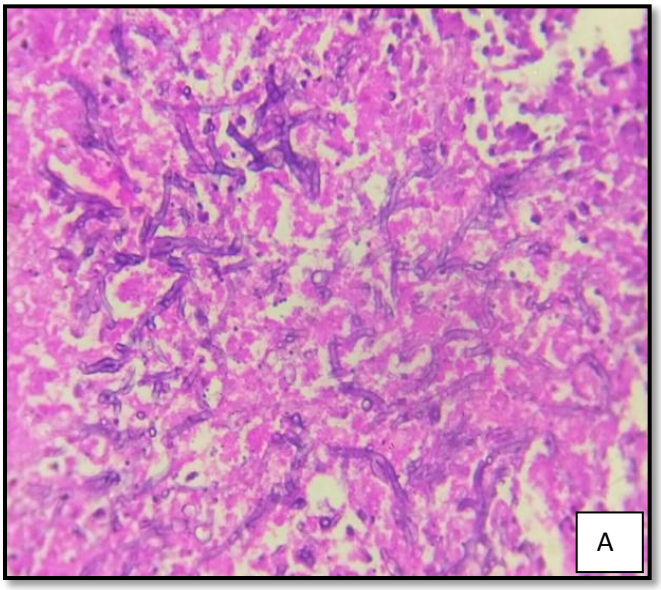


Fig 4 - MLC20/17: Lobar pneumonia.

Broncho-pulmonary aspergillosis – 47 year male, fall from a height, died after 1 month of intensive care (Fig 5).



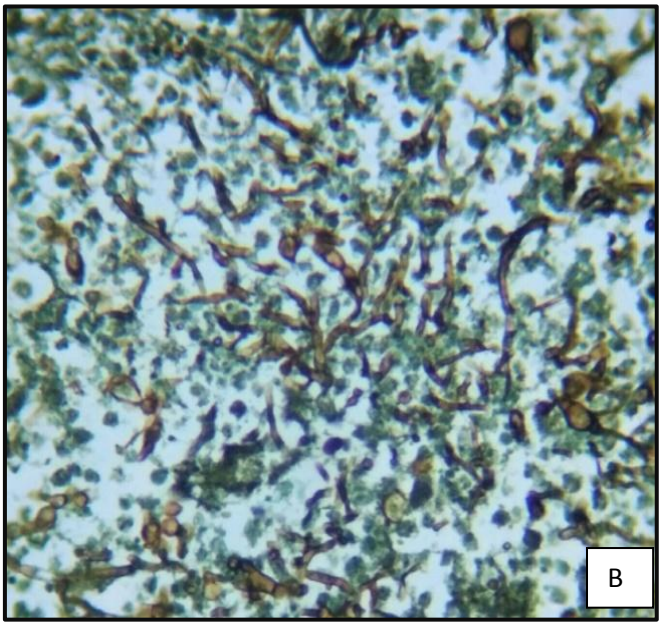


Fig 5- MLC 45/17: Bronchopulmonary aspergillosis with acutely branching septal hyphae (A); Special stain with GMS highlights fungi (B).

Pulmonary hamartoma – 40 year male died in road traffic accident. Grossly, lung showed a subpleural grey-white nodule. (Fig 6)

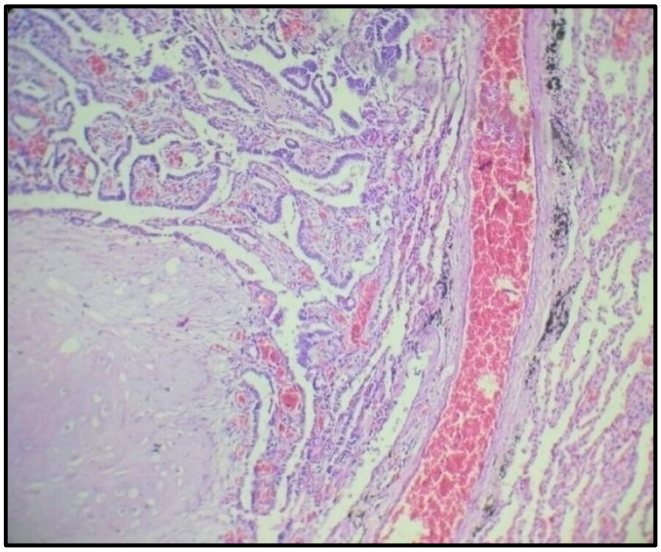


Fig 6 - MLC 60/17: Pulmonary hamartoma with island of cartilage and columnar epithelium.

Adenocarcinoma lung [(5)] – 39 year male committed suicide by hanging (Fig 7).

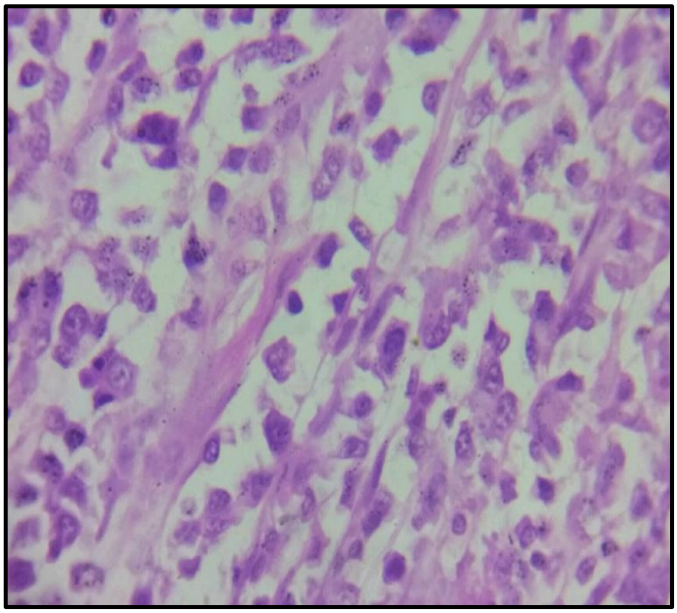


Fig 7 - MLC 89/16: Adenocarcinoma lung with tumor cells arranged in cords.

Adenocarcinoma lung with infiltration into heart – 50 year male treated as tuberculosis and died after 1 year of treatment. (Fig 8)

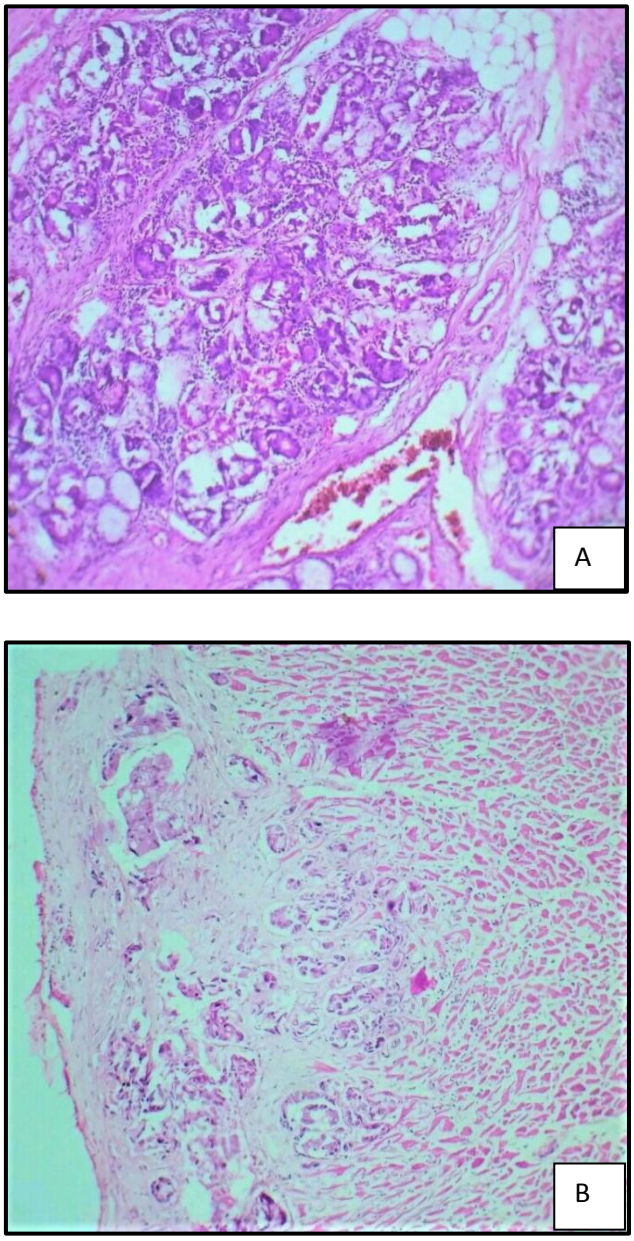


Fig 8 - MLC 59/16: Adenocarcinoma of lung (A); with infiltration into heart (B)

Double lesion (Adenocarcinoma lung with tuberculosis) – 55 year male died due to intra cerebral haemorrhage. (Fig 9)

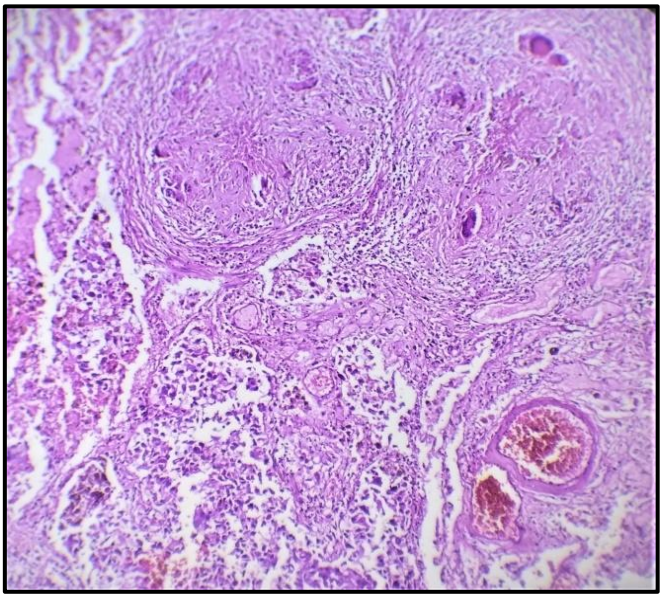


Fig 9 - MLC 104/15: Adenocarcinoma with tuberculosis.

Giant cell myocarditis (GCM) – 17 year female with sudden death (Fig 10).

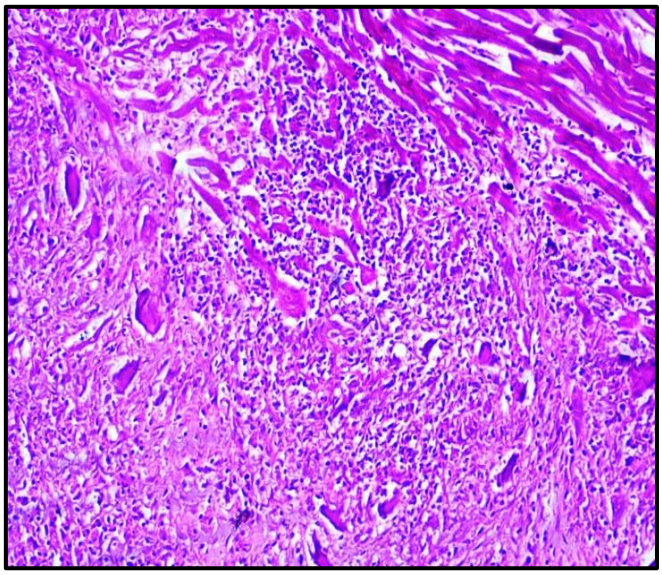


Fig 10 - MLC 35/17: GCM with poorly formed granulomas, giant cells, fibrosis and inflammation.

Aortic dissection – 59 year female with sudden death after a dispute (Fig 11)

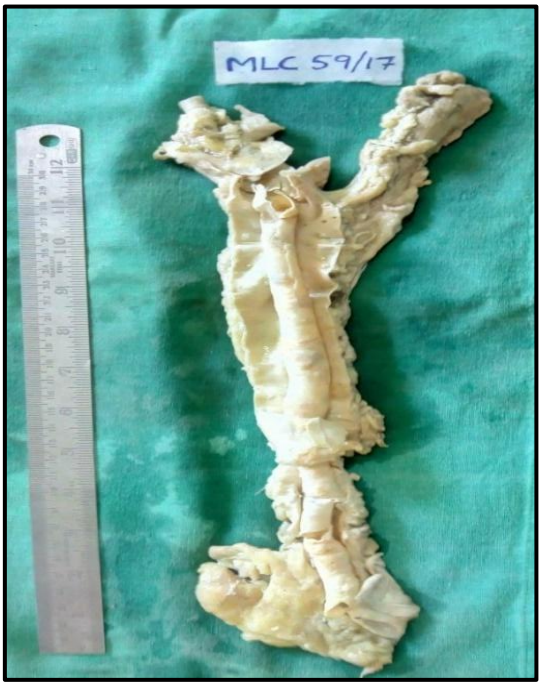


Fig 11 - MLC 59/17: Aortic dissection (Debakey type III).

Discussion

Our study revealed 19 incidental lesions out of 262 cases and accounted for 7.2 % excluding the atherosclerosis, which was comparable to the study done by Sapna Patel etal., in 202 cases. (1)

Most of the incidental findings were revealed in specimens of lung (14/19), unlike the study done by Sapna Patel etal., in which they found most of the incidental lesions in kidney and liver.

Although the diagnostic and treatment modalities of tuberculosis have been rapidly developed, we encountered 4 cases (1.5%) of pulomonary tuberculosis incidentally.

We want to discuss two interesting cases - Giant cell myocarditis and aortic dissection.

Giant cell myocarditis (GCM) is a rapidly progressive and fatal disease. It affects young and middle-aged individuals and presents as new-onset heart failure. Etiology is not clear. Early diagnosis is critical, as cyclosporine based immuno-suppresive therapy improves transplant free survival. Histology remains the gold standard for the diagnosis. Microscopy shows poorly formed non-necrotizing granulomas, giant cells, myocyte necrosis, inflammatory infiltrate and fibrosis. GCM should be differentiated from cardiac sarcoidosis and fulminant lymphocytic myocarditis. (6,7,8,9)

Cardiac sarcoidosis presents as AV block. Microscopy shows non-nectrotizing granulomas, Schaumann or Asteroid bodies and prominent fibrosis.

Fulminant lymphocytic myocarditis presents with flu-like symptoms. Microscopy shows diffuse lymphocytic infiltrates without granulomas.

We encountered a case of aortic dissection (Debakey type III) in a 51 year old female, a hypertensive patient. Obliteration of vasa vasorum due to high wall pressures leads to loss of smooth muscle and degeneration of extra cellular matrix, form the basis for aortic dissection. There are three types of aortic dissection classified based on the extent of dissection. Debakey type III dissection, can be managed conservatively with 75% survival rate.(10)

Conclusion

Histopathology in medicolegal autopsy plays a vital role to identify unexpected pathology including rare lesions and to detect true prevalence of various diseases.

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