Section: Pathology

Original Research Article

A STUDY OF HISTOPATHOLOGICAL SPECTRUM IN AUTOPSIES WITH SPECIAL EMPHASIS ON INCIDENTAL FINDINGS

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ABSTRACT

Background: Autopsy aids to the knowledge of pathology by unveiling the rare lesions which are the source of learning from a perspective. Autopsies are essential for retrospective quality assessment of clinical diagnosis and medical education providing insights into disease pathology and treatment efficacy. Histopathology remains the gold standard for direct morphological and Histological diagnosis. **Aim of the study:** To study the various histopathological lesions in the organs that are submitted for autopsy evaluation and also to identify the incidental finding in them.
Materials and Methods: A retrospective study of 67 cases of autopsy specimen submitted at Dr B R Ambedkar Medical college for a Period of 6 months from May 2022 to oct 2022
Results: In the present study the most age group of autopsies was in the age group of 21-40 years. Atherosclerosis was the most common lesion involved followed by congestion. Few incidental cases of metastasis, silicofibrosis and miliary tuberculosis and intracranial hemorrhage was also noted.
Conclusion: This study contributed a handful of finding to the pool of rare lesions in pathology. Autopsy has significant implications for understanding disease mechanism and improving clinical practices. Sudden death due to cardiac lesion was the most common cause of death with atherosclerosis being the most common cause.
Keywords: Autopsies, Histopathological spectrum, Incidental findings.

INTRODUCTION

Autopsy, by a far measure, remains a cornerstone for medical investigation, offering unparalleled insights to unexplained and suspicious death, occasionally revealing diagnostic inaccuracies beyond the capabilities of contemporary technologies. When supported by histopathological examination plays a vital role in establishing the cause, manner and timing of death, and provides valuable insights in medicolegal cases.[9]
Autopsy is derived from Greek word “autopsia” which means “to see for oneself”. [14]Autopsies are generally categorized into two main types namely: clinical (or hospital) and medicolegal (or coroner’s) autopsy.[1]
Judicial and court systems relying more and more on pathology reports for conclusion of cases.[19] Histological findings are based on pathologist interpretation of slides.[18]
Medicolegal autopsies are performed by forensic expert to support legal investigation by identifying the deceased, determining the cause and time of death and whether injuries occurred antemortem or postmortem. On the other hand, a clinical or pathological autopsy is typically performed by pathologist to ascertain the cause of death and to explore the disease process that contributed to it.[2]
Histopathological examination plays a key role in enhancing the accuracy to support clinical assessment. It reveals the rare or unexpected findings which not only defines the clinical diagnosis by

contributing additional factors but also deepens medical knowledge.[5,12]

This study aims to examine the histopathological pattern observed in autopsy specimen and also seeks to document interesting and unexpected findings that may be missed without detailed analysis.

MATERIALS AND METHODS

This retrospective observational study was conducted in Department of Pathology Dr B R Ambedkar Medical Hospital College and hospital for a period of six months from May 2022 to October 2022, after obtaining ethical clearance from institutional ethics committee of Dr B R Ambedkar medical college, Bangalore. 67 autopsy viscera received from forensic department of our institution out of which samples were received for following organs Liver, spleen, lung, kidney, cerebrum and Heart. The viscera, preserved in 10% formalin with accompanying autopsy records, underwent routine histopathological processing. H&E-stained sections were microscopically examined to establish the cause of death, with documentation of both diagnostic and incidental findings. Appropriate statistical methods were employed to analyze the data.

RESULTS

Out of 67 cases studied,1specimen was autolysed. Males were more common than females. Most common age group was found to be of 21-41 years (32 cases) followed by 41-60 years (24 cases).

Table 1: For age distribution

Age Group	No. of cases	Percentage%
<20 years	4	6.06%
21-40 years	32	48.48%
41-60 years	24	36.36%
>60 years	6	9.09%

Out of 66 cases 32(47.76%) majority belonged to age group of 21-40 years closely followed by 24(35.82%) which were in 41-60 age bracket. Whereas minority were found to in the extreme age groups of either less then 20years or above 60 years.

Out of 66 cases, a distinct demographic pattern with male prevalence amounting to 57(86.3%) was observed with female representing 9(13.7%) of cases.

Table 2: For sex distribution

Age Group	Male	Female
<20 years	4	0
21-40 years	29	3
41-60 years	20	3
>60 years	4	3

In system wise distribution, cardiovascular system was found to be the most common system involved followed by hepatic, respiratory, spleen and least involved was found to be central nervous system.

Liver -

The various lesions that were noted in liver was found to be 37%periportal inflammation (19), 31%congestion (16), 15%cirrhosis (8), 4%bridging fibrosis (2), 6%steatohepatitis with bridging fibrosis (3).

Also, a few intriguing incidental findings were noted – metastasis (1), lymphoproliferative disorder (1) and centrilobular necrosis (1).

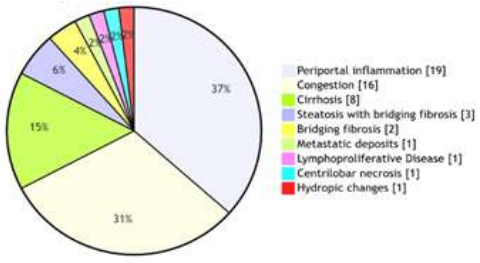

Chart 1: Histological spectrum in liver

LUNGS

Spectrum of lesions that were noted in lungs were 21(31%) pulmonary hypostasis ,5(10.41%) congestion of lungs, 4 (8.33%) chronic venous congestion of lungs. Other interesting findings included- 1(2.08%) Silicofibrosis, 1(2.08%) aspiration pneumonia, 1(2.08%) miliary tuberculosis, 1(2.08%) metastatic papillary carcinoma with psammoma bodies, 1(2.08%) metastatic deposit

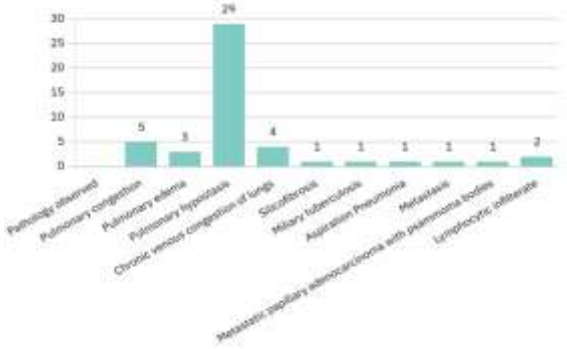

Chart 2: Histological spectrum in lung

Spleen

While out of 46 autopsy samples, 44(95.16%) were congestion making it the prominent finding in most of the cases, two unexpected cases stood out one being the metastatic deposits from adenocarcinoma (2.1%) and other was lymphoproliferative disorder (2.1%).

Table 3: Histological lesion in spleen

Pathology observed	No of cases	Percentage
Congestion	44	95.16%
Diffuse lymphoproliferative disorder	1	2.10%
Metastasis	1	2.10%

Kidney

Out of 60 specimens of kidney, 49(81.66%) were Congestion which was once again found to be the most common histological finding. In contrast, a few cases revealed specific renal pathologies such as 3(5%) chronic pyelonephritis with 1(1.6%) diabetic nephropathy with simple cortical cyst, 1(1.6%) metastasis from adenocarcinoma, 1(1.6%) diffuse glomerulosclerosis, 1(1.6%) nodular glomerulosclerosis. Meanwhile 4(6.6%) showed no significant histological abnormalities.

Table 4: Histological lesions in Kidney

Pathology observed	No. of cases	Percentage.
Congestion	49	81.66%
Chronic Pyelonephritis	3	5%
Diabetic Nephropathy with simple cortical cyst	1	1.6%
Metastasis	1	1.6%
Diffuse glomerulosclerosis with periglomerular fibrosis.	1	1.6%
Nodular glomerulosclerosis	1	1.6%
Unremarkable.	4	6.6%

Brain

Interestingly, all brain specimen 53 showed normal histology except 1 which showed subarachnoid hemorrhage

Table 5: Histological spectrum in brain

Pathology observed	No of cases	Percentage
Normal histology	52	98.11%
Intracranial haemorrhage	01	1.83%

Heart

It was the most common system involved. The most common findings were atherosclerosis 48%(32) including atheromatous plaque31% (21) and complicated plaque 16.6% (11), unremarkable 31% (21), mild intimal thickening 4.5%(3), fatty streaks (1), healed myocardial infarction with root of aorta cusp calcification (1), old MI scar (1), subendocardial infarction (1), myocardial infarction (1), aortic aneurysm (1), metastasis (1)

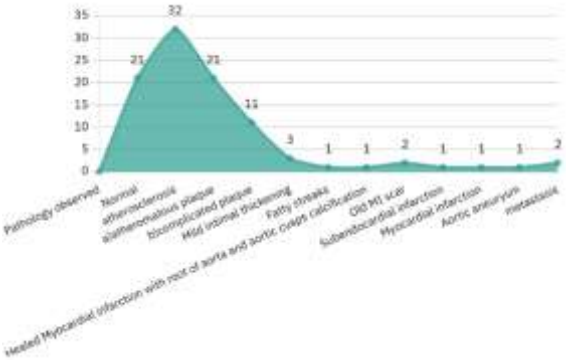

Chart 3: Histological spectrum in Heart

Figure 1: Metastasis to Kidney

Figure 2: Miliary Tuberculosis

Figure 3: Intracranical Hemorraghe

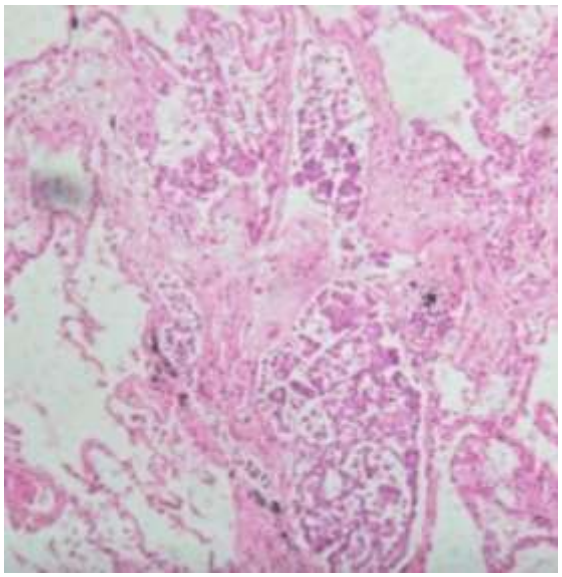

Figure 4: Metastasis to Lung

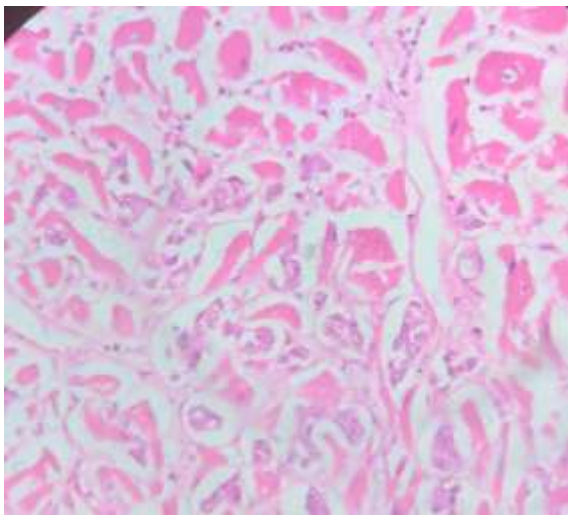

Figure 5: Metastasis to heart

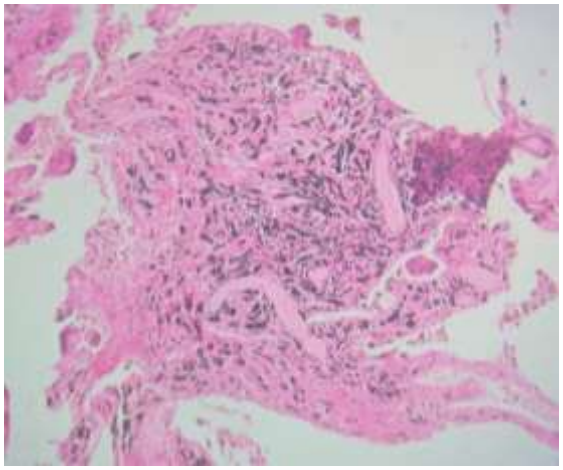

Figure 6: Silicofibrosis with anthrocotic pigment

DISCUSSION

Rates of histopathological examination at autopsy are highly variable.[13] Autopsy continues to serve an invaluable tool in determining, the cause of death and any unintended findings that could have important clinical and mediclegal implication. This study underscores its critical role in analysing prevalent pattern and drawing attention to incidental pathologies.

This study exhibited significant 57(85.07%) male predominance, with male to female ratio of 6:1 which is in concordance with Jhajj et al, Shiffali Sarngal et al.[5,10] Most common age group according to present study was 32(44.48%) cases of age bracket 21-40 which was closely followed by 24(36.36%) cases of age bracket 41-60 with marginal difference. The results were similar to the other studies like Ashraf M Fet al,[7] Kaur Met al.[8]

Most common system involved was found to be cardiovascular system with most common diagnosis of atherosclerosis amounting to 31(49.22%) cases. This was found to be similar to the study by P. Arunalatha et al,[19] Khiste J.A et al,[11] Jhajj et al5, kendi an ac et al1, Verma et al,[17] 4(6.7%) Myocardial infarction (old and new) was found to be

the second most common finding similar to study by verma et al.[17] In this study a rare diagnosis of 1(1.5%) aortic aneurysm 2(3.07%) metastasis was also made.

The second most common organ involved was liver. In our study we found 19(37%) portal triaditis as the most common finding closely followed by16(31%) congestion discordant with study by Elsokkary et al.[16] In studies done by Umesh babu et al,20Sapna Patel et al,[12] Shiffali Sarnagal et al,[10] fatty changes were the most common findings reported for liver autopsy specimen. Minal et al,[9] reported chronic venous congestion as their most common finding followed by portal triaditis which is in concordance to our study. Our study also uncovered several unanticipated findings like 1(1.9%) metastasis, 1(1.9%) lymphoproliferative disease and 1(1.9%) centriolar necrosis.

In our study lungs maximum cases 29(60.41%) were reported as pulmonary hypostasis whereas in studies conducted by Pratima Khare et al,[2] Minal and Rupali et al 9 reported oedema and congestion as the most common findings. Although incidental, findings like 1(2.08%) silicofibrosis, 1(2.08%) miliary tuberculosis, 1(2.08%) aspirational pneumonia and2(4.16%) metastasis were found on histopathological examination which carried potential diagnostic and clinical significance.

Out of 60 autopsy sample available for kidney, 49(81.6%) showed congestion as most prevalent pathology observed. However, a handful of noteworthy cases came into light offering valuable insights like 3 (5%) cases showed chronic pyelonephritis, 1(1%) ace of diabetic nephropathy with simple cortical cyst,1(1%) metastasis,1(1%) diffuse glomerulosclerosis with periglomular fibrosis, 1(1%) nodular sclerosis, 4(4%) were unremarkable. The findings in kidney are discordant due to difference in sample size.

This study found congestion 44(95.6%) to be the commonly encountered finding in spleen which mirrors the results of Minal and Rupali,[9] et al. Few unforeseen findings surfaced in this study, such as 1(2.17%) of diffuse proliferative disorder and 1(2.17%) metastasis.

All the brain sample 52(98.11%) showed normal histology similar to study by caramaschi S et al,[15] expect 1 which showed intracranial haemorrhage.

However, this study has few limitations including underrepresentation of female autopsy cases, a smaller sample size, and being conducted at as single center. Additionally, this study mainly focuses to document the incidental findings.

CONCLUSION

Gross and Microscopy analysis of autopsy specimen revealed various incidental lesions in different system[4]. Histological analysis has a impact on previously performed gross diagnosis especially on heart lung liver and kidney[1]. Histopathological examination is an essential method to conclude an accurate forensic diagnosis.[3] Lifestyle management and emphasis on prophylactic screening of younger age group especially in cardiovascular diseases.[10] Also it provides experience for the pathologist to acquire knowledge in this aspect of histopathology.[6]

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