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Unfolding Mysteries of the Deceased

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Abstract: ***Medicolegal autopsy is performed to find out the cause, time of death and identify diseases which could have contributed to the death. Histopathological analysis may reveal coexisting diseases or incidental findings which may not have been diagnosed antemortem. Autopsy is an opportunity to study not only medically diagnosed and treated neoplasms, but also the natural evolution of untreated disease. This retrospective study emphasizes the various incidental and interesting disseminated malignant tumors detected in autopsies, which otherwise would have been unnoticed during a person's life. From a total of 1380 autopsy specimens received in our department during last 2 years (January 2022 to December 2023), we reported 60 neoplasms (4.3%) which includes 20 (33.3%) benign neoplasms & 40 (66.6%) malignant neoplasms; among malignancies 7 (17.5%) were disseminated. Thus, detailed histopathological examination of autopsy specimens helps to provide clue to the probable cause of death.***

Keywords: Autopsy, Disseminated malignancy

1. Introduction

The Ancient Greek word autopsia, which means "to see for oneself," autos ("oneself"), and opsis ("eye") is from where the word "autopsy" originated. A post-mortem examination, another name for an autopsy, is a highly specialized surgical technique that involves a comprehensive examination of a corpse to assess any potential injuries or diseases as well as to identify the cause and manner of death. Toxicological testing, microscopic and gross examinations, and laboratory studies will help determine the cause of death. In circumstances of unexpected death or when there is no history of prior disease, histopathological examination is regarded as the gold standard for determining the cause of death. Various studies have proved that autopsy helps to establish the cause of death as well as to study disease in situ thus enriching medical knowledge and making various rare diagnoses.

We conducted a retrospective study which highlights the various incidental and interesting disseminated malignant tumours detected in autopsies, which otherwise would have been unnoticed during a person's life.

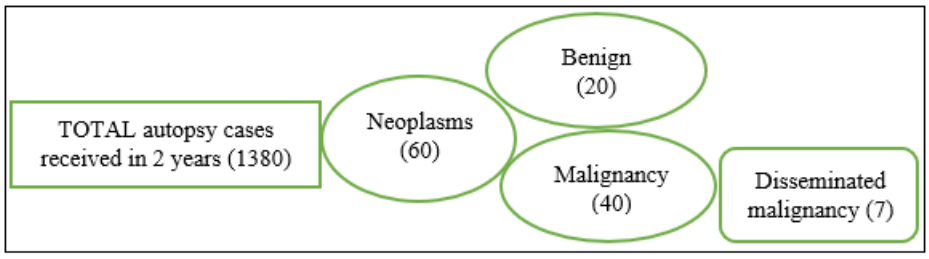
2. Aims and Objectives

To study the histomorphology of incidentally detected disseminated malignancies in autopsy specimens.

3. Materials and Methods

- Retrospective study conducted in the department of pathology in a tertiary care centre from January 2022 to December 2023.
- Hematoxylin and eosin slides and IHC slides were retrieved and reviewed.
- During this study, 7 cases of disseminated malignancies reviewed retrospectively

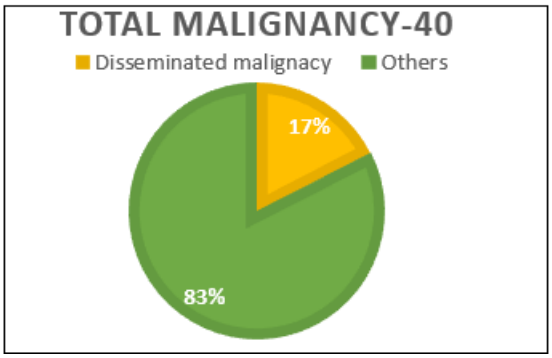
4. Observation and Results

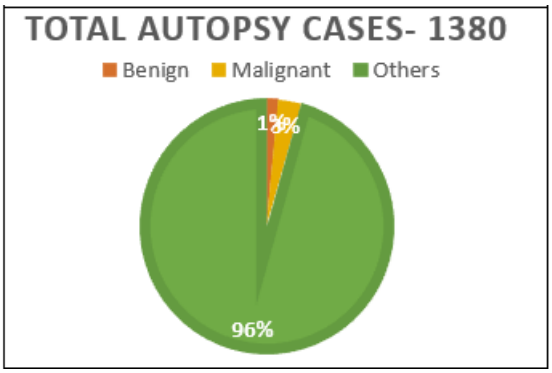


List of Neoplasms in Decreasing Order of Frequency

Squamous cell carcinoma	6
Poorly differentiated tumours	6
Leiomyoma	5
Meningioma	4
Papillary carcinoma thyroid	4
Acute leukemia	4
Renal cell carcinoma	3
Gastrointestinal stromal tumor	3
Hepatocellular carcinoma	3
Pituitary adenoma	2
Adenocarcinoma breast	2
Cavernous hemangioma	2
Nonsmall cell carcinoma lung	2
Adrenocortical adenoma	2

Adenocarcinoma with signet ring cell component	1
Small round blue cell tumour	1
Non Hodgkins lymphoma	1
Choroid plexus xanthogranuloma	1
Neurofibroma	1
Mucinous cystadenoma ovary	1
Dysplasticgangliocytoma cerebellum	1
Glioblastoma multiforme	1
Malignant melanoma	1
Thymoma	1
Neuroendocrine tumour	1



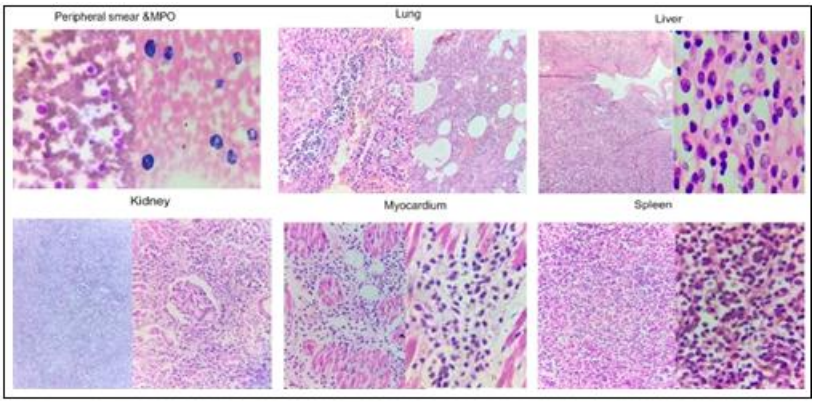


5. Clinicopathologic Correlation

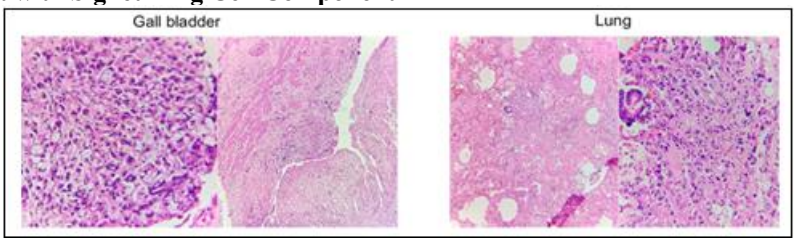
SI no.	Gender/ age	Clinical diagnosis	Gross findings	Microscopy	Diagnosis
1	54/F	K/C/O Haematological malignancy	• All organs showed petechial haemorrhage and were pale. • Lung-nodular lesions noted in bilateral lower lobes	• Liver, lungs, heart, kidney & spleen– infiltration by the leukemic cells • Peripheral smear-WBC count markedly elevated, predominantly atypical cells with high NC ratio, irregularly clumped chromatin& dense cytoplasmic granules. • Bare nuclei seen. Cells are MPO+	Disseminated Acute myeloid leukemia
2	50/M	Found dead	• Mesenteric & paraaortic lymph nodes enlarged. • Gallbladder wall thickened with necrotic area on its surface. • Liver-whitish nodules. • Spleen-soft, friable • Lung-pale, edematous with multiple firm nodules.	• Gall bladder, lungs, kidney, aortic wall, periadrenal tissue&lymph node shows an infiltrating neoplasm composed of cells arranged in glandular pattern (cells with moderate cytoplasm, high NC ratio, hyperchromatic nucleus with prominent nucleoli). Occasional signet ring cells noted.	Adenocarcinoma with signet ring cell component
3	18/M	Rheumatic fever with carditis	• Lung-multiple grey white nodularities of varying sizes on the surface. • Retroperitoneal mass (10×9×3 cm) on right psoas major muscle infiltrating to bladder. • Mesenteric lymph nodes enlarged. • Heart-papillary muscle showed a grey white nodularity.	• Lung, nodular deposits of papillary muscle, retroperitoneal mass shows a neoplasm composed of cells arranged in sheets interspersed with fibrous septa. (cells are small round with scant cytoplasm, fine chromatin) Rosettes & pseudorosettes seen.	Small round blue cell tumour infiltration

4	75/F	K/C/O NHL on palliative therapy.	• Kidney- shows whitish lesion with rubbery consistency, ureter thickened. • Multiple matted lymph nodes in the Paraaortic region. • Lung- congested.	• Kidney, liver, lung, aorta, brain, lymph nodes & stomach wall shows infiltrating neoplasm. • Lung-pulmonary thrombus	Disseminated Non Hodgkins lymphoma.
5	21/F	k/c/o ALL on treatment x 7 years	• All organs- congested. • Hepatomegaly • Kidney- showed multiple red friable lesions	• Liver- all portal areas shows infiltration by atypical lymphoid cells • Spleen-effacement of architecture & infiltration by atypical lymphoid cells	Disseminated ALL
6	68/M	Found dead	• Liver-enlarged, blackish, firm to hard, nodular in appearance. • All other internal organs showed blackish speckles.	• Liver, lung, adrenal, pancreas & brain shows infiltrating neoplasm c/o cells arranged in sheets & nests (moderate to scant cytoplasm, pleomorphic nucleus with prominent nucleoli). • Intense brown to black intra & extra cytoplasmic pigment noted.	Malignant melanoma metastasis to lung, liver, adrenal, pancreas, brain, myocardium & pericardium.
7	15/F	Found dead	• Brain-congested and edematous. • Liver- fatty change, hemorrhage noted. • Matted lymph nodes noted. • Heart-Flabby, subendocardial hemorrhage noted.	• Capillaries in the brain are filled with leukemic infiltrates. • Lung: diffuse infiltrates of leukemic cells within the interstitium and vessels. • Liver: Atypical mononuclear cells in sinusoidal and portal area. • Spleen, kidney, adrenal glands: infiltration by atypical mononuclear cells.	Acute leukemia-infiltration to lung, myocardium, spleen, adrenal, kidney & lymph node.

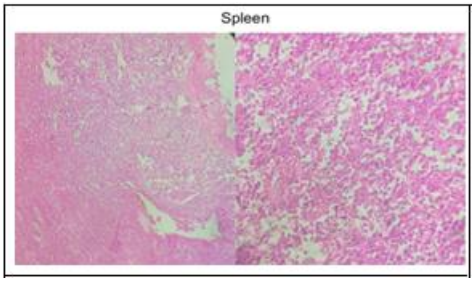
Case 1: Disseminated AML

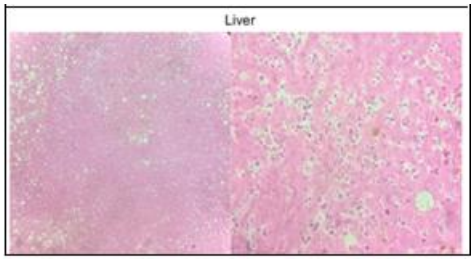


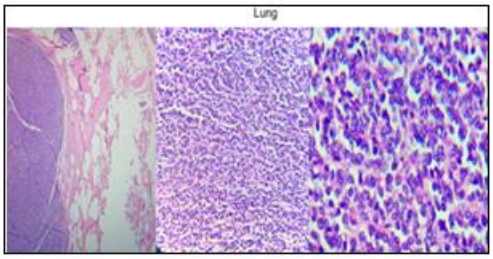
Case 2: Adenocarcinoma with Signet Ring Cell Component



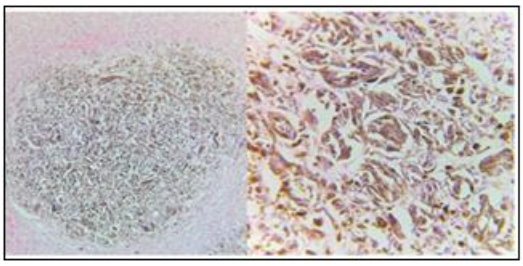
Case 3: Small Round Blue Cell Tumour



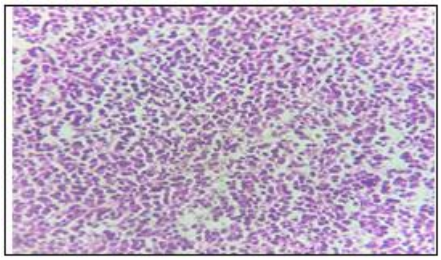




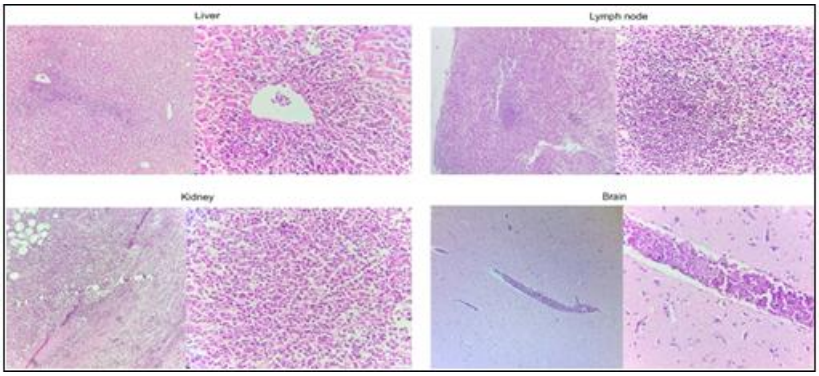
Case 5: Disseminated Acute Leukemia



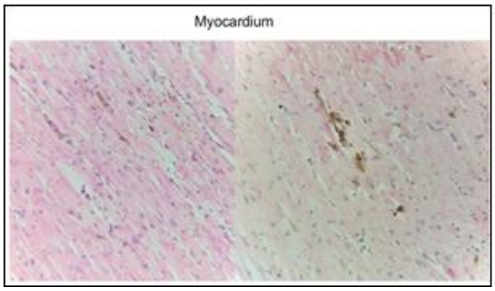
Case4: Disseminated NHL



Case 6: Malignant Melanoma



Case 7: Disseminated Acute Leukemia



6. Conclusion

- Medicolegal autopsies in some cases do not have any known history.
- A routine histopathological examination of medicolegal autopsies may reveal various histopathological findings related and unrelated to the cause of death.
- Autopsy also aids in the diagnosis of previously undiagnosed diseases.
- Out of 7 disseminated malignancies reported in the last 2 years, 4 cases were incidentally detected on histopathological examination.
- These cases might go undiagnosed, if histopathological examination was not performed.
- Histopathological analysis aids in diagnosing previously undiagnosed diseases which may or may not have contributed to death.
- Histopathological study will contribute to ascertain the cause of death in asymptomatic individuals as well as to confirm diagnosis of diseases which were diagnosed ante mortem.

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