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Histopathology Based Epidemiological Study of Autopsy Viscera of Prisoners Received in Department of Pathology M. G. M. Medical College Indore: A two-year study.

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Introduction: "A surgical operation is attended with pain and is for the benefit of the Individual, an autopsy is free from pain is for the benefit of humanity. Paul. H. Brussaral**".** Autopsy also allows physicians to correlate their clinical and diagnostic findings with pathological changes that occurred in the patients. [1,2] The benefits of autopsy include, evaluating the accuracy of diagnosis made and the therapy outcome. Findings on autopsy can help the pathologist to alarm the infection control unit of institution on possible nosocomial infections especially contagious infections; the pathologist can also identify a hereditary condition that would require genetic counseling.

Findings at autopsy also generate vital statistics needed for research as well as the provision of materials for the teaching of anatomy, histology, and pathology. Despite the numerous advantages of autopsy, the rate of request has been found to be declining globally. Several reasons have been attributed to this trend in the developed countries such as availability of modern diagnostic equipment including Computerized tomography scan (CTS), Magnetic resonance imaging (MRI) and ultrasound scan.

Death is considered un-natural when it is caused prematurely against the nature by injury due to either trauma, physical or chemical agents, or other means of violence. Many cultural and socio-economic factors of a country are usually related to the causation of un-natural deaths. Un-natural deaths happen almost everywhere in the world. Data on un-natural deaths in a particular geographical area can give an indication of the nature of such communities, and the health standards and legislation policies. Un-natural deaths are

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categorized into three groups as accidental, homicidal, or suicidal. After unnatural death, following legal formalities forensic professionals take samples from target organs and look for signs of trauma and stress in the soft and hard tissues of the body. A report made by Forensic medicine consultant as to overall condition of the individual and whether any signs of trauma, physically or chemically induced, self-inflicted or in what every way it might have administered are apparent. These reports are then submitted to histopathology department along with target organs. In the histopathology department target organs are processed and H & E-stained slide are studied under light microscope.

Death of prisoners is usually associated with community and familial concern as there is always suspicion of human rights violation and other negligence by the authorities. Having knowledge and data regarding such deaths of prisoners is important to bring attention of prison medical services and helping implementation of needed preventive schemes. Such studies also help the government authorities in prioritising the allocation of their healthcare services and budget [3]. Therefore, we undertook this study to examine Autopsy Viscera of prisoners and provide organ pathology pattern in this population.

Various organ disorders are found on HPE of autopsy organs. Lung disorders like pneumonia, tuberculosis etc., Liver disorder mostly includes steatosis, cirrhosis. Brain, Spleen and kidney disorders. Several heart diseases like myocardial infarction, left ventricular hypertrophy are commonly encountered.

Aims of our study is to find out the prevalence of organ pathology in viscera received of autopsy cases and to find out role of histopathological examination in cases where exact cause of death cannot determine.

Materials And Methods: Prospective study done in department of pathology MGMMC. We receive a sealed container containing target organs with seal in which diseased name, age, sex, date of death, date of post mortem and name of target organ. Received container contains organs or piece of organs in 10% formalin solution. Then gross examination done in which we noticed weight, size, shape, consistency, colour, presence or absence of hemorrhage, necrosis, growth, or any other abnormality. If present than location, extent and relation with surrounding tissue noted. Relevant selection taken for HPE. In case of heart one piece is taken from right and left ventricle, atrium, interventricular septum, aorta, pulmonary artery, coronary arteries, and its major branches.

Total 55 cases were included in study. Specimen received in sealed container, with proper labeling, seal, panchnama report, post mortem report and histopathology investigation request from superintendent of police. Any requisition not fulfilling above criteria were excluded.

Results and observations: Total 55 autopsy cases received for HPE. Out of them only one was of female and rest 54 were male diseased. Age varying from 20 years to 69 years, most were in age group 51-60 years (29%). As per autopsy reports studied, most common cause of

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death was 'cardio-respiratory failure.' Police investigation reports mentions 'death due to unknown cause' as most common finding followed by 'death during treatment'.

Out of 55, lung lesion was seen in 27 cases (49%), pneumonia was most common finding followed by tuberculosis (14%). Malignancy was seen in one case. Cardiac involvement was seen in 32 cases (58%), of them 13 (23%) had myocardial infarction. Liver lesions were seen in 17 cases (30%) out of them 05 cases also showed cirrhotic changes and one case was of liver metastasis from large intestine. Spleen did show any specific pathology in our study. Renal involvement was seen in three cases, but specific renal pathology was not detected.

Table 01: Age wise distribution of cases:

S. No.	Age group (years)	Frequency	Percent
1	21-30	06	10.9%
2	31-40	10	18.2%
3	41-50	14	23.6%
4	51-60	16	29.1%
5	61-70	09	16.3%
	Total	55	100.0

Table 02- Cause of death according to autopsy report:

Cause of Death	No. Of cases	%
Cardiorespiratory Failure	44	80.0
Cause of death remains open	09	16.4
Sudden Syncope	2	3.6
Total	55	100.0

Table 03- Police investigation-based cause of death:

Cause of Death	Frequency	Percentage
Malignancy	2	3.6%
Brain Pathology	1	1.8%
During Treatment	23	41.8%
Head injury due to fall	1	1.8%
Collapse	2	3.6%
Unknown	26	47.4%
Total	55	100.0%

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Table 04- Age group and gender distribution of tuberculosis. (27 cases had lung lesion)

S.No.	Age Group (Years)	Tubercular lesion	Pneumonia	Malignancy
1	21-30	-	01	-
2	31-40	01	04	-
3	41-50	03	03	-
4	51-60	02	06	-
5	61-70	02	04	01
	Total	08	18	01

Table 05- Distribution of Cardiovascular findings (32 cases showed involvement)

S.No.	Age Group (Years)	Left ventricular hypertrophy (> 1.5cm)	Myocardial Infarction
1	21-30	-	-
2	31-40	03	01
3	41-50	09	04
4	51-60	12	05
5	61-70	08	03
	Total	32	13

Table 06- Distribution of steatosis/liver cirrhosis. (17 out of 55 cases had liver lesion).

S.No.	Age	Steatosis	Liver cirrhosis	Malignancy
1	21-30	-	-	-
2	31-40	02	-	-
3	41-50	05	01	-
4	51-60	06	03	-
5	61-70	03	01	01
	Total	16	05	01

Discussion:

In our study tubercular lesion comprises 14% total of autopsy specimens most common age group is 41-50 with male predominance while in Ivana Pavic et al [5] shows out of 3479 autopsies, 1.8%. tuberculosis which (70%) were male and Monika et al [4] shows 8.7% cases of tuberculosis were found in autopsy specimens, most common age group 41-50, of which 60% were males. Other study including lung pathology shows similar changes are Hijorth et

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al[6]Fang F et al [7] Manjit et al [8]. Higher incidence may be contributed to small sample size and varied age, region, and unknown previous health status of diseased.

In our study most common liver lesion was fatty change, 16 cases (29%) followed by liver cirrhosis in 05 cases (09%), these results correspond to other study like Bal et al[9], Selvi et al.[10] Merat et al,[11] Kringsholm et al [12]. In our study maximum number of cirrhosis occur in age group 51-60 years, similar finding in Bal et al[9], RL Carithers et al[13],L Voinova et al, JM Crowfold [14]K Azimi et al [15],Voinova et al[16],Angulo et al[17] study.

Most common of cardiac pathology was Left Ventricular Hypertrophy (LVH) followed by Myocardial infarction (already having LVH). Most of the cases of Myocardial infarction are after 40 yrs. and increase with the age, only one case had MI under age of 40 yrs. and 77% under age of 60yrs. Monika et al studied 115 cases of autopsy, out of which Myocardial infarction was the cause of death in 3 cases (3%). Other study over coronary heart disease also shows same pattern with male predominance Murthy et al studied 150 cases out of which 123 (82%) were males and 27(18%) were females. Singh et al studied 200 cases with 170 (85%) males and 30 (15%) females. Padmavati [18] and Tandon [19] found 66.5% males and 33.5% females. Similarly, Bhargava et al studied 74.8% males and 24.2% females in their study.

Conclusion: Percentage of Tuberculosis, liver cirrhosis, Chronic Glomerulonephritis, pneumonia, left ventricular hypertrophy are more in prisoner. Percentage Tuberculosis in prisoner are high because of maybe because of overcrowding, poor nutrition, low immunity among prisoners. Also, liver, and cardiac involvement found common because of higher addiction and previous bad history among prisoners. Our study will add valuable data to the literature regarding the disorder of different organ and their relative ratio in prisoner.

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