



Non-Hodgkin's Lymphoma: A Clinical autopsy case report with review of literature

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Abstract

We report a clinical autopsy case in a 32 year-old female who was admitted to our hospital in pulmonary medicine with chief complaints of breathlessness dyspnea, fever since 1 month and clinically diagnosed as pulmonary tuberculosis (PTB) defaulter. Ultrasonography (USG) revealed mild hepatomegaly with fatty changes. Patient died on third day of treatment, so her autopsy was performed. The findings of autopsy examination was pale and congested lungs at places, kidney, small and large intestine, liver, uterus bilateral adnexa, shows multiple white nodule of size 0.5X0.5cm. The wall of large intestine was thickened and multiple patches of 5cm were noted. Also we found congested spleen and mild splenomegaly. Brain and heart was unremarkable. Histopathology examination showed non Hodgkin's lymphoma with bilateral infiltration of tumor in lung, liver, kidneys, intestine, ovaries and fallopian tubes. Most commonly primary may be the large intestine. There was no effect on any foci of PTB on p.m. examination or in histopathology.

Keywords: Autopsy, Pulmonary tuberculosis (PTB), Ultrasonography (USG), Histopathology, Immunohistochemistry (IHC), Non Hodgkin's Lymphoma.

Introduction

Clinical autopsies had an essential contribution in developing medical sciences and in medical educational process. Using data obtained from post-mortem examinations, autopsy can be considered as a quality assessing tool for medical health care activity. An autopsy can confirm cause of death but it can also reveal clinical/anatomical inconsistencies. The precise analysis of causes of death is needed to focus research efforts and improve morbidity and mortality. During the past few decades, autopsy rates have fallen worldwide, the reasons for this decrease are many: the time

consuming task of autopsies for pathology departments, fear of potential legal repercussions (should misdiagnoses be discovered), reluctance of families to give permission for the procedure, and doubt concerning the value of the examination in the era of modern diagnostic techniques^[1-3].

The non-Hodgkin lymphomas (NHLs) represent a heterogeneous group of neoplastic diseases with differences in clinical presentation, histologic appearance, clinical course and response to therapy^[4]. NHL consists of many subtypes, each with distinct epidemiology, etiology, and morphologic, immunophenotypic, and clinical

features^[5]. It is not a single cancer, but rather a wide group of cancers, each with a distinct geographical distribution, development path, age profile and prognosis. In terms of incidence, the disease accounts for 5.1% of all cancer cases and 2.7% of all cancer deaths^[6]. In India, as per the estimates, there are approximately 23,718 new NHL cases reported each year^[7]. Here we present an autopsy case of non Hodgkin.s lymphoma in bilateral lung, liver, kidneys, intestine, ovaries and fallopian tubes.

Case Presentation

A 32-year-old female was admitted to our hospital in pulmonary medicine with chief complaints of breathlessness dyspnea, fever since 1 month and clinically diagnosed as pulmonary tuberculosis (PTB) defaulter. There was no history of aspiration, hemoptysis and palpitation. She had past history of PTB from last 2 years and having treatment of AKT Category I but did not complete the course. Now she was on category II (defaulter). Patient was seropositive on antiretroviral therapy (ART). General and systemic examination was poor and afebrile. On

basic investigations, her haemoglobin was 8.3gm%, TLC- 6100/cu.mm, P-61%, L-35%, E-02%, M-02% and platelet count was 34000cu.mm, blood urea- 23mg% and serum creatinine was 0.8mg%. Chest X-ray showed lower respiratory tract infection (LRTI) and ultrasonography (USG) revealed mild hepatomegaly with fatty changes.

Blood pressure was measured half hourly, patient condition progressively deteriorated. On third day of treatment systolic blood pressure was 80 mmHg, pulse rate -80/min and respiratory bilateral crepts were observed. In spite of all efforts patient condition could not be reverted back and patient expired on third day of treatment. After obtaining written informed consent from relatives, clinical post mortem (PM) was done. On PM examination patient was thin built and pale, lungs of patient was pale and congested at places, kidney, small and large intestine, liver, uterus with bilateral adnexa, shows multiple white nodule of size 0.5X0.5cm. The wall of large intestine was thickened and multiple patches of 5cm were noted (Figure 1). Spleen was congested and mild splenomegaly was seen. Brain and heart were unremarkable, (Figure 2).



Figure 1: Shows the gross finding a) Lungs- growth of nodule of 0.5x0.5 cm in right lobe with shiny pleura, b) Liver- multiple nodule of varying size largest of 1.5x1.5 cm, c) Kidney- multiple nodule of 0.5x0.5 cm at capsule, d) Intestine- multiple nodule of varying size along the mesentery, e) Intestine- thickening of wall from serosa to mucosa with multiple patches seen, f) Ovary- nodule of 1x1 cm, g) Uterus- fibroid of 1x1 cm in endometrial cavity.



Figure 2: Gross examination show no relevant findings and areas of congestion in brain, heart and spleen

Histopathology examination revealed non Hodgkin’s lymphoma with infiltration of tumor in bilateral lungs, liver, kidneys, intestine, ovaries and fallopian tubes (Figure 3) with pulmonary edema with interstitial pneumonitis (Figure 4) and congestion in spleen and brain. Most commonly primary may be the large intestine. There was no effect on any foci of PTB on PM examination or in histopathology. Microscopic examination showed that the tumor cells of lungs comprising of lymphocytes, histocyte and few plasma cells arranged in diffuse sheets (Figure 3a). Tumor cells have hyperchromatic nuclei with prominent nucleoli having scanty blue cytoplasm (Figure 3b). Cut section of liver shows dilated, congested hepatic sinusoids arranged in chords showing focal inflammatory infiltrate with few areas

showing hemorrhages and congested blood vessels along with infiltration of tumor tissue (Figure 3c). Microscopically kidney shows glomeruli and tubules cut across in various planes. There is presence of tumor cells comprising of lymphocytes, histocytes and few plasma cells arranged in diffuse sheets (Figure 3d). Submucosa and muscularis mucosa of intestine shows dilated lymphoid follicles and infiltration by tumor cells comprising of lymphocytes and plasma cells arranged in diffuse sheets (Figure 3e). Fallopian tube shows tubal lining lined by ciliated columnar epithelium, under neath seen mucosa, submucosa and muscular is. Within the wall seen infiltration by tumor cells comprising of lymphocytes and plasma cells arranged in diffuse sheets (Figure 3f).

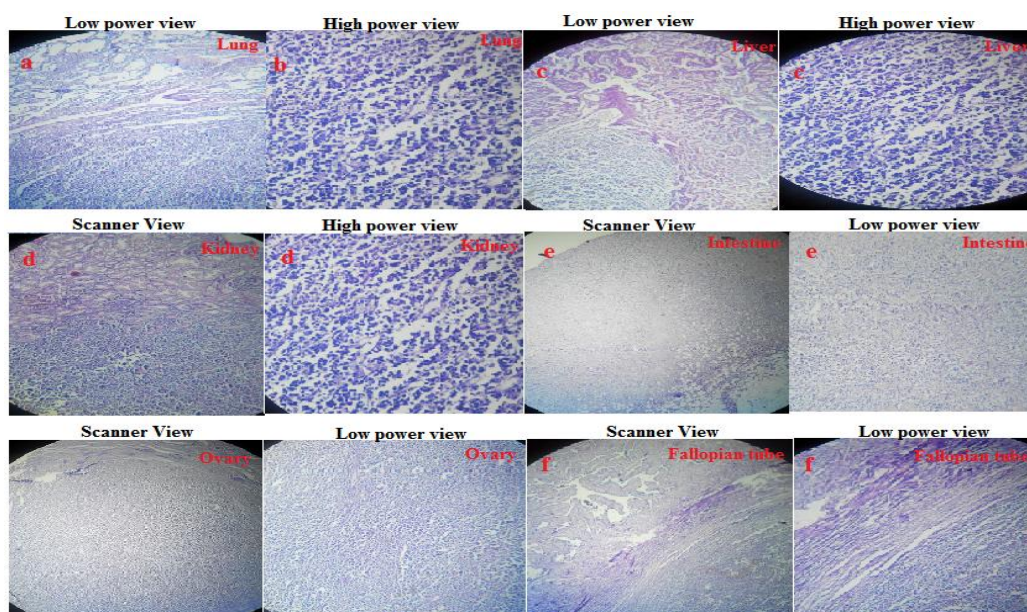


Figure 3: Histopathology examination of tumor cells of lungs, liver, kidneys, intestine, ovaries and fallopian tubes

Low power view showing interstitial pneumonitis

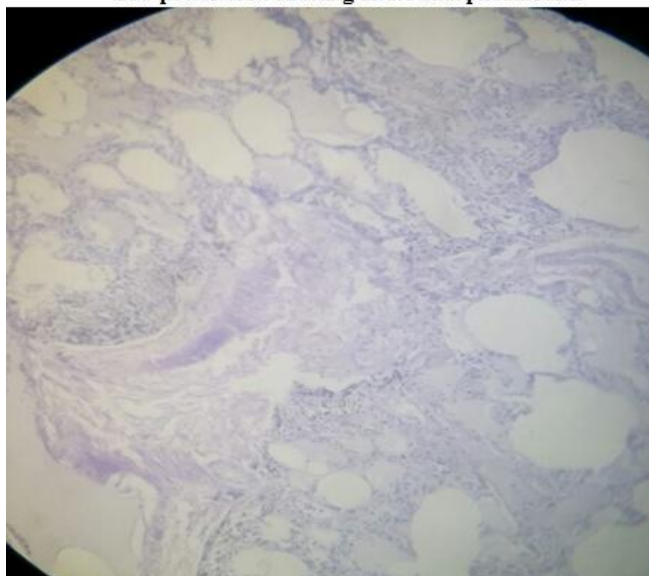


Figure 4: Interstitium shows presence of oedema and presence of inflammatory infiltrate comprising of polymorphs

So the diagnosis of non Hodgkin's lymphoma was made supported by Immunohistochemistry which showed positivity of tumour cells for B lineage markers (CD20 and CD79a) and negativity for T lineage markers (CD3 and CD138). Also it showed only 30% Mib1 activity which is lower as compared to high proliferative activity in case of Burkitt's lymphoma [8]. Sections from bilateral lungs, liver, kidneys, small and large intestine, ovaries and fallopian tubes showed infiltration by tumour cells with similar morphology as described above. Immunohistochemistry (IHC) showed a positive reaction of the tumor cells for leukocyte common antigen (LCA) (Figure 5) and the B lineage marker CD 20 (Figure 6). The tumor cells were negative for the T lineage marker CD3 (Figure 7).

Figure 5: Positive LCA stain in tumors

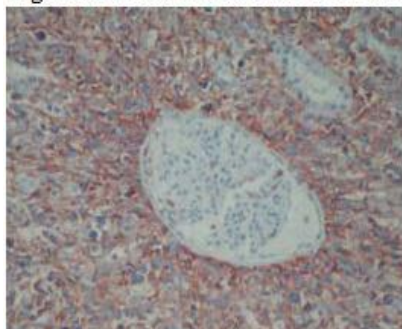


Figure 6: Positive CD 20 stain in tumors

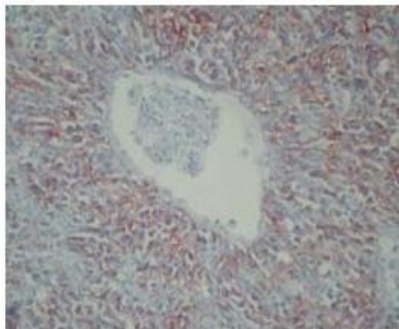
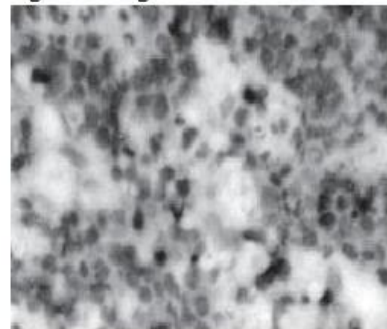


Figure 7: Negative CD3 stain in tumors



Discussion

Since 1970, the incidence of lymphoma, a potentially curable disease, has risen by 80% in the general population and in HIV-positive patients. Given its clinical similarities to tuberculosis (TB), lymphoma may be misdiagnosed and patients treated unnecessarily with potentially harmful TB medication. Several reports have described the coexistence of tuberculosis and non-Hodgkin lymphoma in lymph nodes^[9]. Of importance, TB and lymphoma can be causatively related, through the well established lymphoma related immunosuppression^[10,11]. In the other direction, it has been reported that the risk of non-Hodgkin lymphoma is significantly increased (OR 1.8) in individuals with a history of TB^[12]. The risk of non-Hodgkin

lymphoma is increased in individuals with a history of severe forms of tuberculosis who have not received curative chemotherapy^[13] and an underlying common susceptibility has been postulated. However, no experimental data exist to support the role of merely latent TB as an aetiological factor for NHL. On the other hand, the incidence of TB in NHL patients is much higher than in the general population^[14]. Likewise in our patient risk of non-Hodgkin lymphoma is increased continuously because she had past history of PTB from last 2 years and having treatment of AKT Category I but did not complete the course.

Hence, in PTB related deaths circumstances of death as well as gross and histopathological findings must be considered. In our case

histopathological sections of all organs (Lungs, liver, kidney, intestine, ovaries and fallopian tubes) show non Hodgkin's lymphoma with infiltration of bilateral tumor with pulmonary edema with interstitial pneumonitis which may leads to multi organ failure and death.

Better understanding of the pathogenesis of lymphomas has become possible with the help of IHC and its careful utilization aids identification and the characterization of immunophenotype in most of the lymphomas^[15]. The panel of markers is decided based on morphologic differential diagnosis (no single marker is specific) which includes leukocyte common antigen (LCA), B-cell markers (CD20 and CD79a), T-cell markers (CD3 and CD5) and other markers like CD23, bcl-2, CD10, cyclinD1, CD15, CD30, ALK-1, CD138 (based on cytoarchitectural pattern). No antibody is lymphoma specific hence interpretation of marker studies must be based on a panel and knowledge of a particular antigen's expression in normal, reactive, and neoplastic conditions^[16]. Immunohistochemistry in our case showed positivity of tumour cells for leukocyte common antigen (LCA) and B lineage marker (CD20) and negativity for T lineage marker (CD3).

Conclusion

Incidence of Non-Hodgkin's lymphoma is increasing worldwide and this has been observed in India too. In this report, the diagnosis of malignant lymphoma was made by histopathological examination of the excised tissue along with immunohistochemistry by using LCA, CD20 and CD3 markers. On the basis of microscopic findings supported by IHC, a diagnosis of Non-Hodgkin's Lymphoma of the lung, liver, kidneys, intestine, ovaries and fallopian tubes was made.

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