

# Hodgkins Lymphoma in Pregnancy: A Case Report

Dr Neha Goyal, Dr Tushar Palve, Dr Aditi Parmar

BCJ Hospital and Asha Parekh Research Centre

**Abstract-** Pregnancy is a special phase in every woman's life and demands special care because even a small mishap can turn this happy journey into a scary nightmare. That's why treating any ailment including malignancy merits special consideration as it can have a long lasting impact on two lives. Hodgkins lymphoma is one of the common malignancy encountered during pregnancy and chemotherapy plays a central role in its management. Chemotherapeutic drugs with their toxic effects can have a profound effect on the outcome of pregnancy. Keeping this view in mind we report our experience of treating such patient in a tertiary care hospital and try to highlight the challenges involved. Lymphoma is a rare diagnosis in pregnancy. Chemotherapy and radiotherapy during the first trimester is associated with fetal malformation risk which diminishes as pregnancy advances. In view of relative rarity of such cases there is a critical need for multicentre cooperation and a central registry to collect data on such cases and their follow up so that treating physicians could assess more accurately the safety of different chemotherapeutic agents in pregnancy.

**Index Terms-** Hodgkins Lymphoma, Pregnancy, Chemotherapy

## I. INTRODUCTION

Hodgkin lymphoma (Hodgkin's disease, HL) accounts for only 10 percent of all lymphomas, but it is one of the most frequent malignancy diagnosed during pregnancy, occurring in approximately 1:6000 deliveries<sup>1-3</sup> and this accounts for 3 percent or fewer of all patients with HL. In coming years incidence of lymphomas in pregnancy may increase due to the current trend to postpone pregnancy until later in life and the probable association of AIDS-related non-Hodgkin's lymphoma (NHL) in developing countries like India.<sup>4-5</sup> Thus proper diagnosis and management of HL becomes imperative.

## II. CASE REPORT

A 28 yrs old primigravida with 6 months amenorrhea came with pain and swelling in lower extremities, joint pain, weight loss, chronic cough and generalized pain and weakness since. She had h/o pulmonary Koch's 7 yrs back & took AKT for 6 months. Her general condition was poor, she was cachexic and pale. On respiratory examination there were decreased bronchial sounds on right side with occasional crepts. On investigating she had leucocytosis (WBC 33700 with neutrophilia), ESR-110, CRP-positive (45), HIV-negative, RFT & LFT-normal. Chest x-ray (figure 1) was s/o Rt lower lung mass with Rt. Sided pleural effusion with? Pulmonary Koch's, 3 samples of sputum were negative for AFB but culture showed fluconazole resistant Candida species USG (OBS)- SLIUG 25 wks, Placenta- anterior

grade 1, EFW-748 gms, IUGR baby. HRCT (figure 2) showed large lung mass with cavitation in right middle lobe of lung with 10\*9\*9.6 cms with extensive mediastinal & subcarinal adenopathy (fig1). Cylindrical broncheitis in rt upper & lower lobes. CT guided biopsy of mediastinal mass was done. Biopsy (figure 3) was suggestive of classical Hodgkins Lymphoma (fig.2). On IHC cells were positive for CD30 & MUM-1 and negative for LCA, CD15, CD20, CD3. Oncology referral was done and she was diagnosed with case stage-2-3 hodgkins lymphoma. Chemotherapy was started (ABVD) along with antibiotics. Within 3 days pt. went in spontaneous preterm labour & delivered a preterm female baby of 930 grams vaginally. Her postnatal period was uneventful but unfortunately baby expired on day 8 post delivery.

## III. DISCUSSION

In women 15–24 years of age, HL is the one of the most frequently encountered malignancy, accounting for 51% of the hematologic malignancies complicating pregnancy.<sup>6</sup> Single women have higher rates of the disease than married women, as do women with lower parity or late age at first full-term pregnancy.<sup>7-8</sup> Many studies suggest that HL presents with typical manifestations in the pregnant woman.<sup>9-10</sup> Pregnancy also does not seem to affect the stage of disease at presentation, the response to therapy, or the overall survival rate from HL.<sup>6</sup>

To establish a diagnosis and classify the subtype of lymphoma, histopathological examination of a lymph node biopsy is mandatory which can be safely done under local or general anesthesia during pregnancy.<sup>2,11</sup> Nodular sclerosis is the commonest subtype encountered even in this subgroup.<sup>2</sup>

The HASTE sequence of MRI provides a rapid and comprehensive imaging of the entire chest that has largely replaced conventional MRI, and provides enough information on lymph node size with no measurable radiation risk to the fetus. PET/CT should be performed after delivery to assess treatment response.

Each patient must be looked at individually for treatment options because HL diagnosed in first trimester does not constitute an absolute indication for therapeutic abortion.<sup>12</sup> If the HL presents in early stage above the diaphragm patients can be followed carefully with induction at 32 – 36 weeks<sup>13-15</sup> and definite treatment can be offered afterwards.<sup>16</sup> Alternatively, these patients can receive radiation therapy with proper shielding.<sup>17-20</sup> In a study at M.D. Anderson authors reported no congenital abnormalities in 16 babies delivered after the mothers had received supradiaphragmatic radiation while shielding the uterus with five half-value layers of lead.<sup>21</sup> Because of theoretical risks that the fetus might develop future malignancies from even minimal scattered radiation doses outside the radiation field,

radiation therapy should be postponed, if possible, until after delivery.<sup>22</sup>

As far as possible, chemotherapy should be avoided in first trimester because of well documented risk of spontaneous abortion and congenital anomalies<sup>7,9,23-26</sup> but if required a single agent treatment with anthracycline antibiotics (high molecular weight) or vinca alkaloids (highly protein bound) followed by multiagent therapy at the end of first trimester can be considered. Similarly intrauterine growth restriction and low birth weight have been observed during the second and third trimesters, which may be attributed to either nutritional deficiencies from the tumor or chemotherapy-induced anorexia.<sup>13</sup>

Dilutional and iron-deficiency anemia found during pregnancy combined with cytotoxic effects of chemotherapy may increase the risk of anemia.<sup>23</sup> Conversely, studies with long-term follow-up have not shown hematologic or immunologic abnormalities or impairments in learning behavior of children exposed to chemotherapy in the womb.<sup>10,13,22,25</sup> As per the study conducted by Bachanova and Connors in 2008, combination of doxorubicin, bleomycin, vinblastin and dacarbazine (ABVD) is a regimen of choice if multiagent therapy is to be used as it appears to be safe for fetal development when used in any trimester.<sup>26-27</sup> In one randomized controlled study, the 20-year survival rate of pregnant women with HL did not differ from the 20-year survival rate of nonpregnant women<sup>28</sup>. Experience regarding chemotherapy during lactation is limited. As dose-dependent as well as dose-independent effects of these drugs cannot be ruled out most authorities consider cancer chemotherapy to be incompatible with breastfeeding.<sup>2</sup>

#### IV. CONCLUSION

Although HL has a relatively high incidence in women of reproductive age, HL in pregnancy is still uncommon, corresponding to 3.2% of all patients with HL. Although prognosis does not appear to be adversely affected, pregnancy imposes significant limitations on HL management. Exposure of the developing fetus to teratogens should be avoided whenever possible, but delaying treatment may be deleterious to the mother. Chemotherapy that is administered in the first trimester has been associated with congenital abnormalities in as many as 33% of infants<sup>13</sup>. Women who present with favorable histologic characteristics and early-stage disease can be followed carefully and chemotherapy delayed until after delivery. Chemotherapy probably can be safely received during the second and third trimesters, but radiotherapy should be avoided late in pregnancy owing to the close proximity of the pregnant uterus to the lower border of the treatment field. Chemotherapy should not be given within 3 weeks of scheduled delivery to prevent fetal myelosuppression. Each patient must be looked at individually to take into account the stage and rapidity of growth of the lymphoma and the patient wishes.

#### REFERENCES

- [1] Pentheroudakis G, Pavlidis N (2006) Cancer and pregnancy: poena magna, not any-more. *Eur J Cancer* 42:126-40
- [2] Koren G, Lishner M, Santiago S (2005) *The Motherisk Guide to Cancer in Pregnancy and Lactation* (Motherisk program, Toronto, Canada), 2.

- [3] Pavlidis NA (2002) Coexistence of pregnancy and malignancy. *Oncologist* 7:279-87.
- [4] Diamond C, Taylor TH, Aboumradi T, Anton-Culver H (2006) Changes in acquired immunodeficiency syndrome-related non-Hodgkin lymphoma in the era of highly active antiretroviral therapy: incidence, presentation, treatment, and survival. *Cancer* 106:128-35.
- [5] Cheung MC, Pantanowitz L, Dezube BJ (2005) AIDS-related malignancies: emerging challenges in the era of highly active antiretroviral therapy. *Oncologist* 10:412-26.
- [6] Hurley TJ, McKinnell JV, Irani MS. Hematologic malignancies in pregnancy. *Obstet Gynecol Clin North Am* 2005;32:595-614.
- [7] Peleg D, Ben-Ami M. Lymphoma and leukemia complicating pregnancy. *Obstet Gynecol Clin North Am* 1998;25:365-383.
- [8] Kravdal O, Hansen S. Hodgkin's disease: the protective effect of childbearing. *Int J Cancer* 1993;55:909-914.
- [9] Pohlman B, Macklis RM. Lymphoma and pregnancy. *Semin Oncol* 2000;27:657-666
- [10] Weisz B, Schiff E, Lishner M. Cancer in pregnancy: maternal and fetal implications. *Hum Reprod Update* 2001;7:384-393
- [11] Weisz B, Meirou D, Schiff E, Lishner M (2004) Impact and treatment of cancer during pregnancy. *Exper Rev Anticancer Ther* 4:889-902.
- [12] Koren G, Weiner L, Lishner M, et al.: Cancer in pregnancy: identification of unanswered questions on maternal and fetal risks. *Obstet Gynecol Surv* 45 (8): 509-14, 1990
- [13] Cardonick E, Iacobucci A: Use of chemotherapy during human pregnancy. *Lancet Oncol* 5 (5): 283-91, 2004
- [14] Jacobs C, Donaldson SS, Rosenberg SA, et al.: Management of the pregnant patient with Hodgkin's disease. *Ann Intern Med* 95 (6): 669-75, 1981
- [15] Nisce LZ, Tome MA, He S, et al.: Management of coexisting Hodgkin's disease and pregnancy. *Am J Clin Oncol* 9 (2): 146-51, 1986
- [16] Anselmo AP, Cavalieri E, Enrici RM, et al.: Hodgkin's disease during pregnancy: diagnostic and therapeutic management. *Fetal Diagn Ther* 14 (2): 102-5, 1999 Mar-Apr.
- [17] Mazonakis M, Varveris H, Fasoulaki M, et al.: Radiotherapy of Hodgkin's disease in early pregnancy: embryo dose measurements. *Radiother Oncol* 66 (3): 333-9, 2003.
- [18] Greskovich JF Jr, Macklis RM: Radiation therapy in pregnancy: risk calculation and risk minimization. *Semin Oncol* 27 (6): 633-45, 2000.
- [19] Fisher PM, Hancock BW: Hodgkin's disease in the pregnant patient. *Br J Hosp Med* 56 (10): 529-32, 1996 Nov 20-Dec 10.
- [20] Friedman E, Jones GW: Fetal outcome after maternal radiation treatment of supradiaphragmatic Hodgkin's disease. *CMAJ* 149 (9): 1281-3, 1993.
- [21] Woo SY, Fuller LM, Cundiff JH, et al.: Radiotherapy during pregnancy for clinical stages IA-IIA Hodgkin's disease. *Int J Radiat Oncol Biol Phys* 23 (2): 407-12, 1992
- [22] Lishner M: Cancer in pregnancy. *Ann Oncol* 14 (Suppl 3): iii31-6, 2003
- [23] Wiebe VJ, Sipila PE. Pharmacology of antineoplastic agents in pregnancy. *Crit Rev Oncol Hematol* 1994;16:75-112.
- [24] Doll D, Ringenberg Q, Yarbro J. Management of cancer during pregnancy. *Arch Intern Med* 1988;148: 2058-2064.
- [25] Aisner J, Wiernik PH, Pearl P. Pregnancy outcome in patients treated for Hodgkin's disease. *J Clin Oncol* 1993;11:507-512.
- [26] Lacher MJ, Geller W. Cyclophosphamide and vinblastine sulfate in Hodgkin's disease during pregnancy. *JAMA*.1966;195:486-488.
- [27] Wells JH, Marshall JR, Carbone PP. Procarbazine therapy for Hodgkin's disease in early pregnancy. *JAMA*.1968;205:935-937.
- [28] Lishner M, Zemlickis D, Degendorfer P, et al.: Maternal and foetal outcome following Hodgkin's disease in pregnancy. *Br J Cancer* 65 (1): 114-7, 1992.

#### AUTHORS

**First Author** – Dr Neha Goyal, BCJ Hospital and Asha Parekh Research Centre  
**Second Author** – Dr Tushar Palve, BCJ Hospital and Asha Parekh Research Centre

**Third Author** – Dr Aditi Parmar, BCJ Hospital and Asha Parekh Research Centre

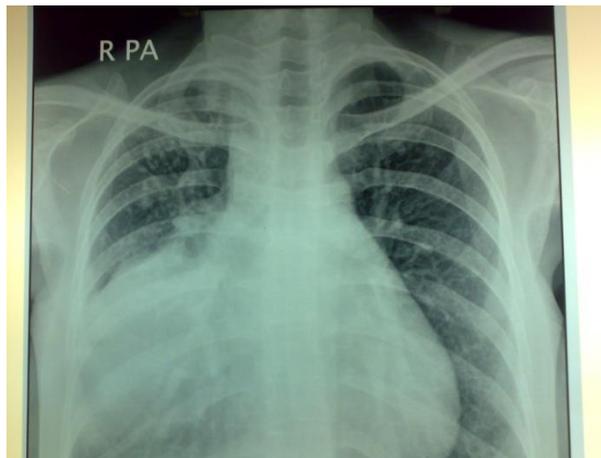


Figure 1 Chest Xray Showing Rt lower lung mass



FIGURE 2 HRCT image Showing Lung mass with cavitation in right middle lobe of lung

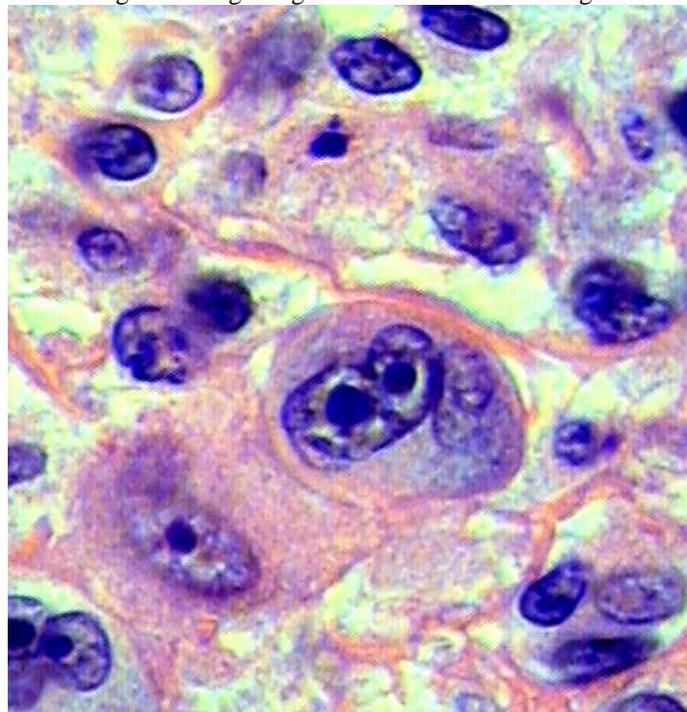


FIGURE 3: microphotograph of mediastinal mass biopsy showing **Reedsternbergs cells**