**INTRODUCTION**

Rituximab is a murine/human chimeric anti-CD20 monoclonal antibody that has become the key molecular targeting drug for CD20-positive B-cell lymphoma. CD20-negative phenotypic change in CD20 positive lymphomas after rituximab treatment has been reported indicating that the phenomenon after the use of rituximab may not be rare. Mechanisms of cell destruction that has been demonstrated to be activated by rituximab binding to CD20 include direct signaling of apoptosis, complement activation and cell mediated cytotoxicity. Resistance could be mediated by alterations in CD20 expression. We present the case of a twenty-nine year old male who was diagnosed with primary mediastinal (thymic) large B cell lymphoma (PMBL). Nine months later, after treatment with an anti-CD20 agent, recurrent diffuse large B cell lymphoma in the pancreas was diagnosed, but the anti-CD20 was negative.

**CASE REPORT**

This is the case of a twenty-nine year old male complaining of cough and shortness of breath who presented an anterior mediastinal mass for which a core needle biopsy was done. Histologically, the biopsy presented large cells with abundant pale cytoplasm and prominent nucleoli (fig. 1 & 2). A panel of immunohistochemical stains was performed. Neoplastic cells were positive for CD20 (fig. 3), CD19, BCL2, BCL6, and MUM-1 which was consistent with mediastinal (thymic) large B cell lymphoma (PMBL). Nine months later, after treatment with an anti-CD20 agent, the patient presented a pancreatic mass for which another core needle biopsy was done. Recurrent diffuse large B cell lymphoma was diagnosed, but the anti-CD20 was negative (fig. 4). The Anti-CD79a B-cell marker was positive (fig 5 & 6) which confirmed the diagnosis of diffuse large B cell lymphoma.

**DISCUSSION**

Diffuse large B-cell lymphoma (DLBCL) represents 40% of the non-Hodgkin lymphomas. Histologically the tumor cells are medium size to large with abundant pale clear cytoplasm and regular round or ovoid nuclei, but could present pleomorphic or multilobulated nuclei (resembling Reed-Sternberg cells of Hodgkin lymphoma). The stroma could present a sclerosis pattern. The CD20 antigen is a membrane-bound protein that is thought to play a role in B-cell activation, differentiation, and cell-cycle progression. Approximately 95% of B cell lymphomas express the CD20 antigen. The fact that some tumors do not express CD20 indicates that CD20 is not critical for B cell survival. Rituximab is a monoclonal antibody that binds to a portion of CD20 receptor that exists only on mature B lymphocytes, both malignant and nonmalignant. There are several hypotheses in the literature that could explain the loss of CD20 antigen expression in a recurrent lymphoma following treatment with rituximab. Among them are the following: Clonal evolution and epigenetic changes of the CD20 protein, inhibition of antibody binding and CD20 blocked by residual rituximab which could be ruled out with negative lambda or kappa surface staining. We can, tentatively, conclude that treatment with anti-CD20 was not successful in this case, even though, through an unknown mechanism, CD20 expression was lost in the recurrent lymphoma.

**References**


