Burkitt's Lymphoma

Burkitt’s lymphomas are mature B cell neoplasms that affect mainly adolescents or young adults. These cancers are associated with translocations of the c-MYC gene on chromosome 8, usually with the IgH locus on chromosome 14. The c-MYC coding sequence is repositioned adjacent to a strong Ig promoter and enhancer elements which drive increased c-MYC expression, resulting in upregulated expression of genes involved in cell proliferation. This tumor exhibits a high mitotic index with numerous apoptotic cells. The nuclear remnants of these cells are phagocytosed by interspersed macrophages with abundant clear cytoplasm. These phagocytes create a characteristic starry sky appearance as the macrophages are evident within sheets of lymphocytes. There are several forms of this including an endemic form, commonly called the African form, and a non endemic sporadic form, commonly called the American form. The endemic African form is the most common malignancy of children in this area and characteristically involves the jaw or other facial bones. The non endemic American form typically involves the pelvis or abdomen. There is also a subset of aggressive lymphomas that occurs in individuals infected with HIV. Essentially all endemic tumors are related to a latent infection of Epstein Barr virus and is also present in about 25% of HIV associated tumors and 20% of non endemic forms.



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Adolescents or young adults
Young Kids
Both the endemic and sporadic form of Burkitt's lymphomas affect mainly adolescents or young adults.

C-myc gene moves next to heavy chain Ig gene
C-Mickey ears with Heavy Chains
All forms of Burkitt's lymphoma are associated with translocations of the c-MYC gene on chromosome 8, usually with the IgH locus on chromosome 14. The c-MYC coding sequence is repositioned adjacent to strong Ig promoter and enhancer elements which drive increased c-MYC expression. C- MYC gene codes for a transcription factor that when constitutively expressed can lead to unregulated expression of genes involved in cell proliferation.

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(8) Ball being hit by (1) Wand attached to (4) Fork cue stick
All forms of Burkitt's lymphoma are associated with translocations of the c-MYC gene on chromosome 8, usually with the IgH locus on chromosome 14. The c-MYC coding sequence is repositioned adjacent to strong Ig promoter and enhancer elements which drive increased c-MYC expression.

Starry sky appearance
Starry-night Sky
This tumor exhibits a high mitotic index with numerous apoptotic cells. The nuclear remnants of these cells are phagocytosed by interspersed macrophages with abundant clear cytoplasm. These phagocytes create a characteristic starry sky appearance.

Sheets of lymphocytes with interspersed macrophages
Lymphocytes with Interspersed Mac-men
This tumor exhibits a high mitotic index with numerous apoptoic cells. The nuclear remnants of these cells are phagocytosed by interspersed macrophages with abundant clear cytoplasm. These phagocytes create a characteristic starry sky appearance.

Jaw lesion in endemic (African) form
African with jaw lesions
There are several forms of Burkitt's lymphoma including an endemic form, commonly called the African form. It is the most common malignancy of children in this area and the disease characteristically involves the jaw or other facial bones.

Pelvis or abdomen in non endemic form (American form)
Guy with American-flag with Intestines showing
There are several forms of Burkitt's lymphoma including a non endemic form, commonly called the American form. In this form, the pelvis or abdomen is more commonly involved with the ileo-cecal region being the most common site of involvement.

Associated with EBV
Einstein-virus
Essentially all endemic tumors are related to a latent infection of Epstein Barr virus and also present in about 25% of HIV associated tumors and 20% of non endemic forms. The configuration of the EBV DNA remains identical in all tumor cells in each case, indicating that the EBV infection precedes transformation.

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