

Breast Implant Associated Anaplastic Large cell Lymphoma: a new distinct clinicopathologic entity

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INTRODUCTION

ALK negative Anaplastic Large Cell lymphoma associated with breast Implant (iALCL) has been recently recognized as a distinct entity.

METHODS

From 2010 to 2014, 43830 lymphomas were registered in the "French network" of which 300 breast lymphomas (<1%). As expected, the most frequent were B-cell lymphomas (90.5%) and T-cell lymphomas (8%). Interestingly, the most frequent T-cell lymphoma was ALK-negative ALCL and all of these 19 cases (6%) were associated with breast implants (**Fig.1**). To shed more light on their clinicopathologic features and their outcome, these iALCL cases have been retrospectively analyzed.

RESULTS

Two clinical presentations were observed: 1) effusion (seroma)-associated lymphoma with fibrous capsule surrounding implant, and less frequently, 2) tumor mass-associated lymphoma. These two clinical presentations correlated with distinct histopathologic features. In patients with a seroma the proliferation of anaplastic cells was confined to the fibrous capsule ("in situ iALCL" **Fig.2A-B**) while patients presenting with a tumor mass showed more heterogeneous proliferations infiltrating surrounding tissues ("infiltrative iALCL" **Fig.2C-D**). The latter consist of either sheets or clusters of large anaplastic cells often accompanied by eosinophils. In some cases the presence of numerous Reed-Sternberg-like cells, in a background rich in eosinophils, was highly suggestive of Hodgkin lymphoma. In two cases, the two morphologic patterns (i.e. "in situ iALCL" and "infiltrative iALCL") were observed, suggesting that "in situ iALCL" may evolve with time to an "infiltrative ALCL". Malignant cells were strongly positive for CD30 and showed also a variable staining for EMA, while they did not express ALK. All cases had a T-cell phenotype with variable T-cell antigen loss and expressed cytotoxic molecules. When tested, T-cell receptor genes (TCR) were clonally rearranged. The median age of the patients was 61y (range 42-90y). The median time elapsed between placement of breast implants and diagnosis of iALCL was 8 years (range 1-14). Of note, all commercially available breast implants were found, most were textured and ruptured. Majority of patients presented with seroma (i.e accumulation of fluid around the breast implant). Implant removal was performed in 17/19 patients. Additional treatment based on chemotherapy (n=10/17) or/and radiation (n=2/15) was given to 10/15 patients. The overall survival for "in situ" and "infiltrative" iALCL was 100% and 66%, respectively (**Fig.3**).

CONCLUSIONS

Although a median follow-up of 20 months, our results showed that patients with an "in situ iALCL" have an indolent clinical course and a generally remain free of disease after removal of implant and capsulectomy. However, patients presenting with a tumor mass associated with an "infiltrative ALCL" may have a more aggressive clinical course that may require chemotherapy/radiation therapy in addition to removal of implant and capsulectomy.

Figure 1 : Distribution of 300 breast lymphoma subtypes registred since 2010.

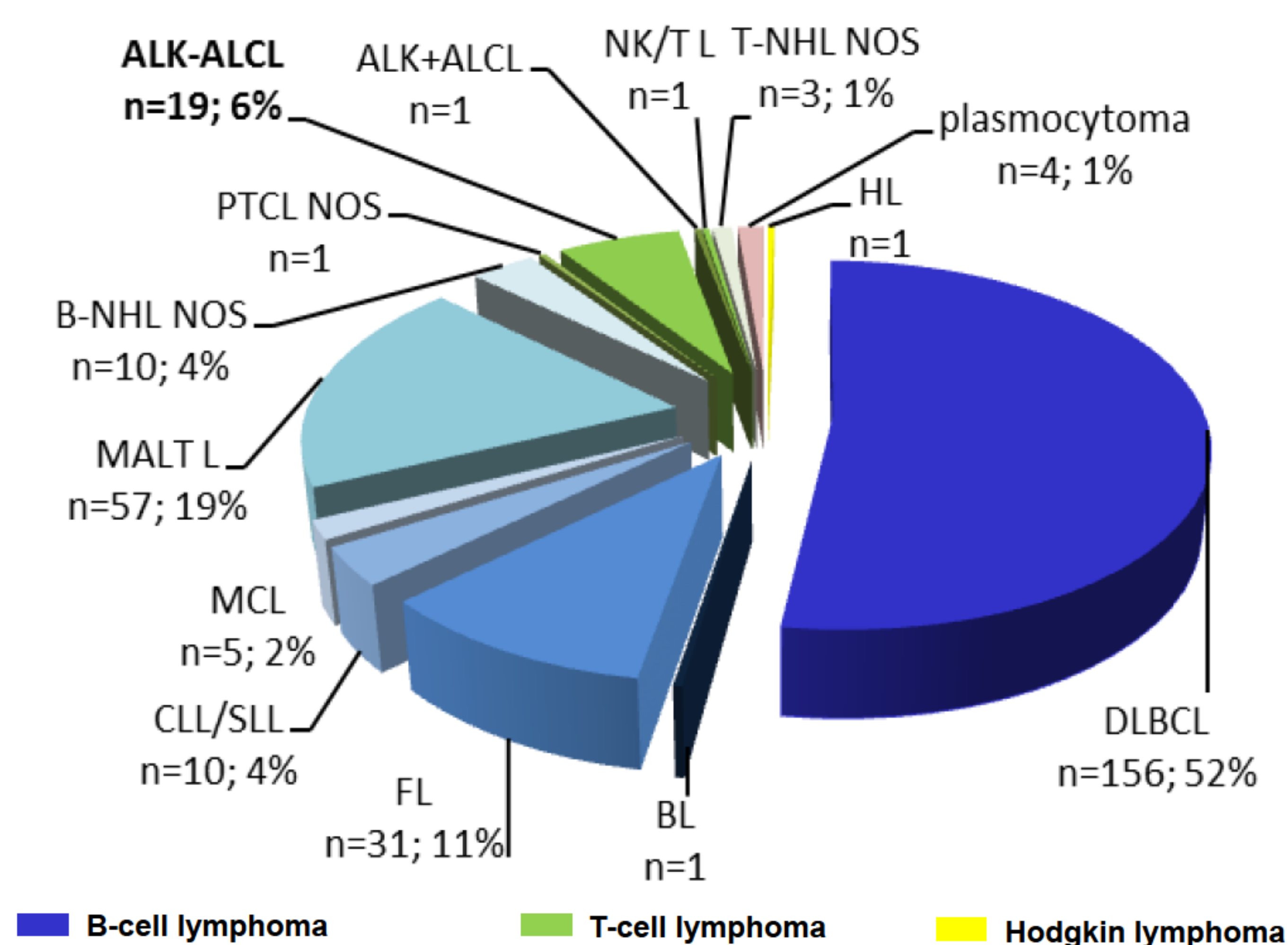


Figure 2 : Pathological features of i-ALCL subtypes.

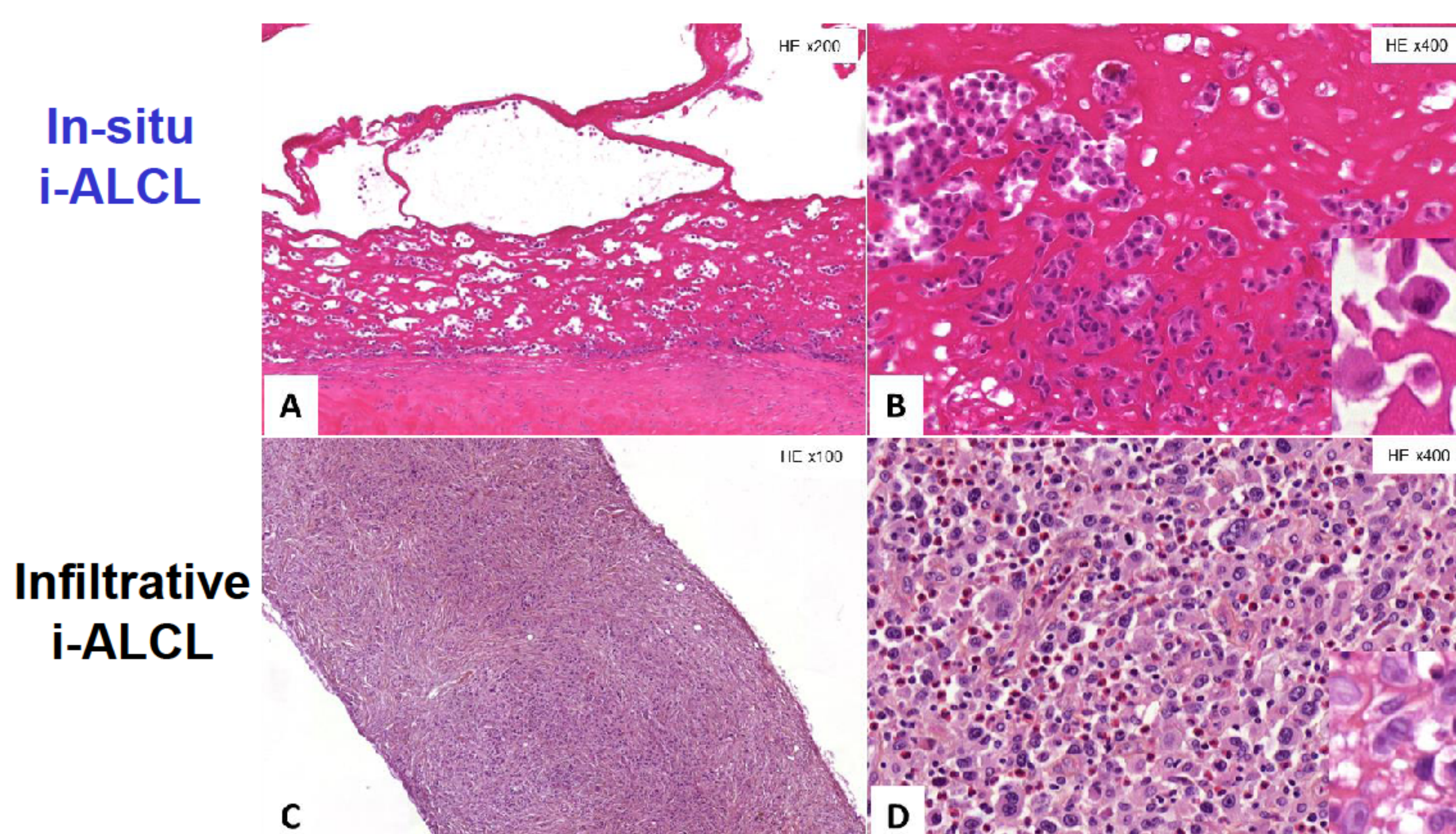


Figure 3 : Kaplan-Meier curve showing overall survival estimates for the two i-ALCL subtypes.

