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Editorial

Care and Remedy-Gold Associated Lymphadenopathy

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Colloidal gold is employed for alleviating autoimmune diseases, as anti-tumour therapy and for specific modes of drug delivery.

Infrequently, morphological alterations as lymphadenopathy or lymph node infarction may emerge as complications of injectable gold wherein accumulation of gold particles within macrophages is observed.

Contingent to mechanics of drug administration, gold associated lymphadenopathy is commonly encountered within cervical, axillary or mesenteric lymph nodes [1,2].

Clinically, gold associated lymphadenopathy demonstrates tender, enlarged lymph nodes. Deposition of gold particles within lymph node parenchyma is a benign condition wherein clinical symptoms retrogress upon cessation of gold therapy [2,3].

Grossly, lymph node parenchyma delineates extensive necrosis [3,4].

Upon microscopy, lymph node undergoes comprehensive or subtotal infarction in addition to peripheral organization of granulation tissue which appears to organize within the region of sub-capsular sinus.

Miniature foci of residual, viable lymphoid tissue expounds follicular hyperplasia whereas centric region of lymph node enunciates focal aggregates of necrotic cells with 'ghost' perimeter [3,4].

Follicular hyperplasia demonstrates an enlargement of lymph node cortex on account of a bilateral amplification of quantity and diameter of secondary lymphoid follicles which may sporadically extend into subjacent paracortex and medulla. Follicular hyperplasia may not modify normal lymph node configuration [3,4].

Although attenuates, various subdivisions of lymph node are discernible or follicular hyperplasia may be accompanied by hyperplasia of adjoining subsidiaries of lymph node. An inconstant appearance and magnitude of reactive follicles is discernible, which may characteristically elucidate polarized germinal centres [3,4].

Secondary follicles are comprised of centroblasts and centrocytes commingled with tingible body or phagocytic macrophages and small, mature B lymphocytes along with a peripheral cuffing of appropriately configured and well delineated mantle zone [3,4].

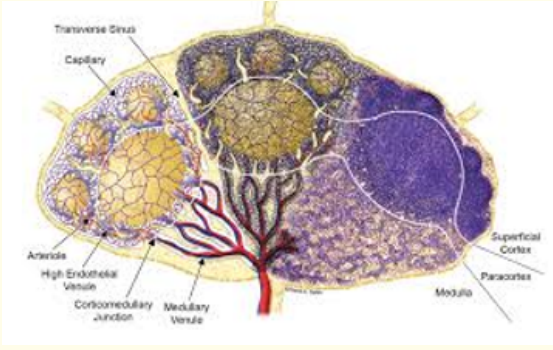

Figure 1: Normal lymph node architecture delineating cortex, cortico-medullary junction, medulla and diverse vascular articulations [11].

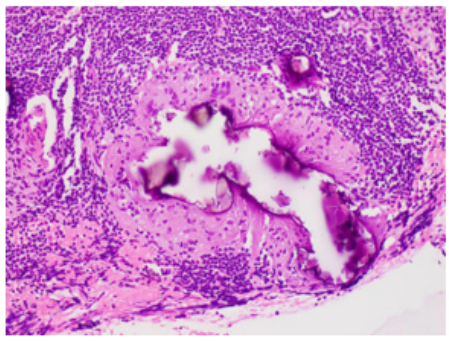

Figure 2: Gold associated lymphadenopathy expounding scattered epithelioid cell granulomas admixed with focal micro-calcification [12].

Nodal lymphomas
Angioimmunoblastic T cell lymphoma
Follicular T cell lymphoma
Nodal peripheral T cell lymphoma with follicular helper T cell (TFH) phenotype
Extra-nodal lymphomas
Cutaneous CD4+ small/medium T cell lymphoproliferative disorder

Table 1: World Health Organization (2017) classification of T follicular helper cell lymphomas [5,6].

Lugano classification of staging non Hodgkin's lymphoma is denominated as

- Stage I is described as
- Lymphoma confined to singular lymph node region (I)
- Lymphoma incriminates singular extra-lymphatic organ or extra-nodal site whereas lymph node involvement is absent (IE)
- Stage II is described as
- Lymphoma incriminating ≥2 lymph node regions on one side of diaphragm (II)
- Lymphoma incriminates singular organ and regional lymph nodes along with or absence of neoplasm confined to diverse lymph node regions on one side of diaphragm (IIE)
- Stage III where lymphoma incriminates lymph node regions on opposite sides of diaphragm (III)
- Stage IV where lymphoma disseminates to diverse extra-lymphatic organs as bone marrow, hepatic or pulmonary parenchyma along with or devoid of incrimination of various lymph node groups (IV) [5,6].

Gold associated lymphadenopathy expounds follicular or reactive hyperplasia of lymph node parenchyma with pertinent immune reactivity.

Gold associated lymphadenopathy requires segregation from conditions as malignant lymphoma, vascular thrombosis, bacterial infection of lymph node parenchyma and mechanical pressure which engenders 'infarction' of lymph nodes [7,8].

Haematological investigations enunciates polymorphonuclear cells with neutrophilia, leukopenia and thrombocytopenia. Accumulation of gold within lymph node is associated with hepatic toxicity [7,8].

Upon plain radiographs, accretion of gold may simulate intra-nodal calcific deposits, especially within axillary lymph nodes as discerned with mammography or observed with subjects of rheumatoid arthritis [8,9]. Surgical tissue sampling appears appropriate for determining gold associated lymphadenopathy [9,10].

Besides, dark-field microscopy and diagnostic manoeuvers as auto-metallography demonstrate gold nanoparticles of magnitude 15 to 50 nanometres confined to lymph node parenchyma [9,10].

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11. Image 1 Courtesy: Sage Journals.

12. Image 2 Courtesy: Science direct.