

hepatocytes noticed concomitantly with large vacuolated cells. Acidophil bodies also noticed (Figure 3).

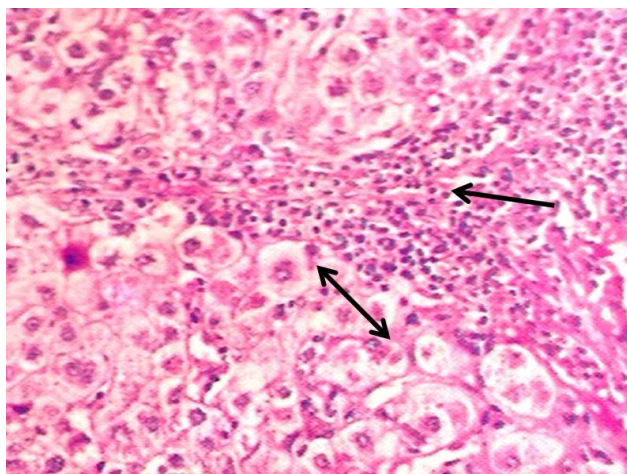


Figure 3. Liver tissues in male rat exposed to 4 week continuous darkness. Necrosis was seen blurring the septal-parenchymal junction, and obvious swelling of adjacent liver cell cytoplasm (double head arrow). Severe infiltrated with different types of inflammatory cells was illustrated in the connective tissue (one head arrow), and unusual ductular proliferation is seen. (H&E×250)

In **group IV**: There was nodular formation; consisting of aggregated hepatocytes, and the nodules were surrounded by thick bands of fibrous connective tissue, infiltrated with large number of mononuclear cells and macrophages. There was a variation in the size of hepatocytes and their nuclei, with moderate amount of fatty vacuoles within those hepatocytes. A large number of apoptotic cells in parenchyma and mononuclear cells infiltration both in septal and parenchymal constituents (Figure 4).

In **group V**: Abnormal liver architecture was clearly seen, with wide fibrous septal bands, radiating from the portal tract to surround the lobules. Those lobules consisted mainly from hepatocytes with a large number of mononuclear cells.

Prominent fatty vacuolation, was seen within the hepatocytes. Apoptotic hepatocytes seemed

to be much more abundant in this group (Figure 5).

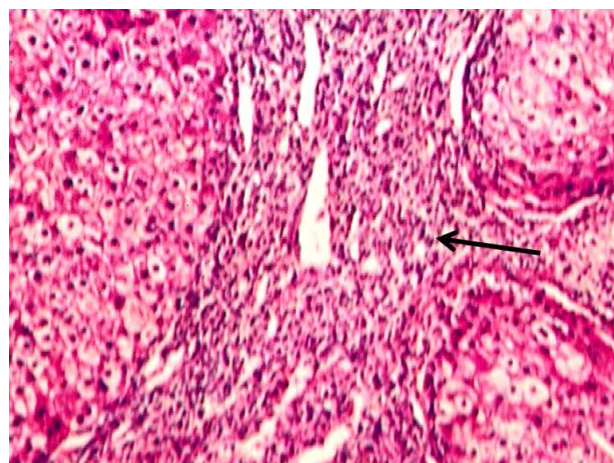


Figure 4. Liver tissues in male rat exposed to 6 week continuous darkness. Bands of fibrous connective tissue surrounding a population of hepatocytes forming nodular compartments of liver tissues. Connective tissue infiltration with mononuclear cells (arrow). There was discrepancy in the size of hepatic cells and their nuclei. Fatty change was present. (H&E. ×250)

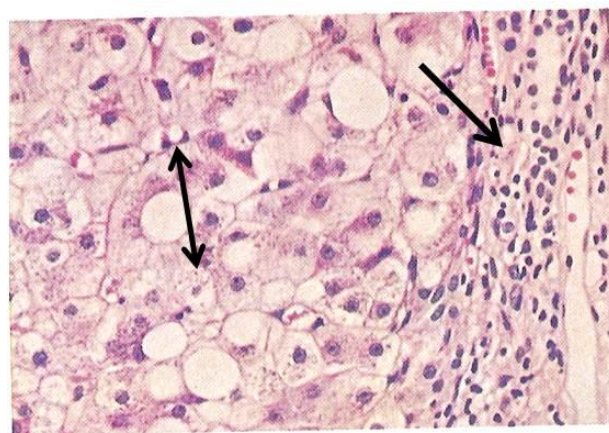


Figure 5. Liver tissues in male rat exposed to 8 weeks continuous darkness. A more apparent nodular organization of the hepatic tissue was viewed. The lobules were surrounded by short connective tissue bands (one head arrow). A clear fatty change was seen (double head arrow). (H&E ×250)

Discussion

The continuous darkness was well documented to increase the endogenous melatonin, the principle pineal neuro-hormone ^(3,4,11), and the