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Case Report

Pathology Section

Solitary Necrotic Nodule of Liver (SNNL): A Report of Two Cases

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ABSTRACT

SNNL is a rare, benign lesion which may arise from trauma, a sclerosing haemangioma or it may represent a burned out phase of various conditions like parasitic infections, or chronic infections like tuberculosis. Histopathology provides the definite diagnosis, which thus helps clinicians in allaying unnecessary anxiety of the patient and in planning proper management.We are reporting two cases here, which had solitary necrotic nodules of liver (SNNL), with emphasis on the aetiology and morphology of the lesions. SNNL was incidentally detected during cholecystectomy done in both young female patients. The lesion was solitary in one case and it was multiple in the other. The suspected aetiology in one of the cases was parasitic, whereas it was tuberculosis in the other. The clinical features in both cases were suggestive of neoplasms.

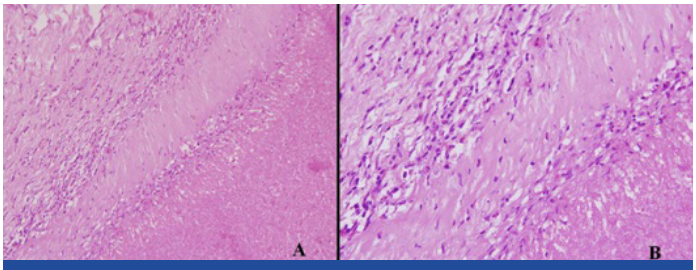
Keywords: Solitary necrotic nodule, Liver

CASE 1

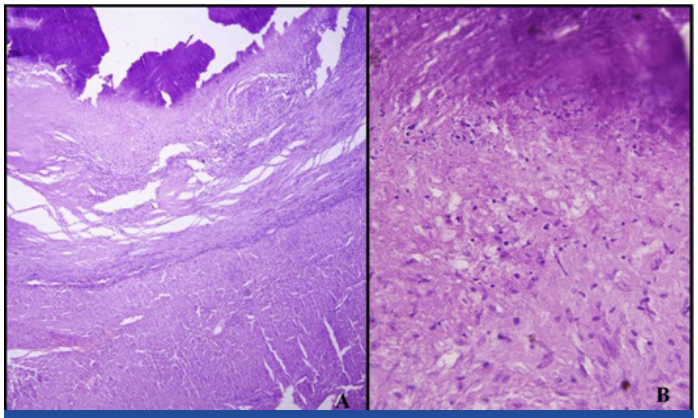
A 28-year-old female presented to the surgery OPD with pain in right side of abdomen. On examination, tenderness was noted in the right hypochondrium. Radiological examination revealed multiple stones in the gallbladder. During open cholecystectomy which was done, a subcapsular nodule was noticed in the liver, which was excised and sent for histopathological examination, along with gallbladder. A grey-white nodule which measured1x1x0.6cm was received, cut surface of which was firm, homogenous and which showed focal areas of calcification. Microscopic examination revealed sharply defined, nodular areas of calcified coagulative necrosis which were surrounded by fibro-hyaline tissue [Table/Fig-1] and palisaded histiocytes, along with diffuse inflammatory infiltrate Comprising of lymphocytes, plasma cells and eosinophils [Table/Fig-2]. The surrounding liver parenchyma revealed periportal chronic inflammation and mild sinusoidal dilation. Von kossa staining for calcium showed positivity. Reticulin staining demonstrated focal prominence of reticulin fibres within the necrosis; however, no granuloma, parasite, fungus or atypical cell could be identified. A final diagnosis of SNNL was given. The gallbladder showed chronic cholecystitis with cholelithiasis.

CASE 2

A 32-year-old female presented with pain in right side of abdomen. On examination, tenderness was noted in the right hypochondrium. MRCP revealed distended gallbladder with multiple calculi. During cholecystectomy, multiple sub capsular small nodules were noticed in the liver. The gallbladder, along with wedge biopsy of one of the liver nodules, was sent for a histopathological examination.



[Table/Fig-1]: A: Central necrotic tissue surrounded by a fibrotic capsule in case 1 (HE x 400)
B: Fibrohyaline capsule with palisaded histiocytes and diffuse infiltrate of lymphocytes, plasma cells and eosinophils in case 1 (HE x 600)



[Table/Fig-2]: A: Case 2 showing central necrosis surrounded by fibrous capsule, adjoining hepatic parenchyma appears normal (HE x 400)
B: Fibrous capsule shows palisaded histiocytes in case 2 (HE x 600)

A single grey white nodule which measured 1.2x1x0.4cm was received, cut surface of which was firm and homogenous. On microscopy, hepatic tissue revealed a small subcapsular nodular area of coagulative necrosis with focal calcification, which was surrounded by fibrohyaline tissue, palisaded histiocytes, epithelioid cells and a lymphoplasmacytic infiltrate. No fungus, granuloma, parasite or atypical cell was identified. Reticulin staining did not reveal any significant increase in fibres. The surrounding liver parenchyma revealed moderate periportal lymphocytic inflammation. A final diagnosis of SNNL was given. Although the staining for acid fast bacilli was negative; further diagnostic work-up for ruling out remote possibility of tuberculosis was suggested. The gallbladder showed features of chronic cholecystitis with cholelithiasis.

DISCUSSION

Solitary necrotic nodule of liver (SNNL) is an unusual benign lesion, with only few cases being reported in the literature [1-5]. It was first described in 1983 by Shepherd and Lee [1] Many studies have emphasized that these lesions may be erroneously diagnosed as metastatic deposits, both clinically and radiologically [2,3].

The lesion is clinically silent and it is mostly detected as an incidental finding at post-mortem, intraoperatively or during radiological investigations [2,4]. Around 10% of cases which have been reported in the literature had two or more nodules [5]. In one of

our cases (Case 2), there were multiple nodules. The aetiology and pathogenesis of the lesion still remain ambiguous; however, it has been suggested by various authors that it is related to infections like tuberculosis and Syphilis, parasitic infestations, trauma and sclerosing haemangiomas [1,5]. Possibility of SNNL arising from two or more different mechanisms simultaneously has also been suggested [3]. About 50% cases were reported with other types of tumours being present elsewhere in the body, which were mostly seen in post mortem studies [1,5,6]. In the present cases, the patients were healthy, except for cholelithiasis and they did not have past or family histories of chronic infections like tuberculosis. In Case 1, the presence of an eosinophilic infiltrate around the nodule pointed towards a parasitic aetiology. In Case 2, the presence of epithelioid cells at the periphery of nodule, along with lymphoplasmacytic infiltrate, suggested a possibility of SNNL which was secondary to tuberculosis. However, none of the aetiologies in either case could be established definitely.

The lesion lacks distinguishing clinical and laboratory features [5]. Though the radiological examination of the lesion usually reveals hypoechoic nodules with indistinct margins, these findings are not sufficient for making a definitive diagnosis. Final diagnosis requires a histopathological examination, but various authors differ in their choice of preferred tissue for diagnosis of clinically suspected SNNL cases. On one hand, Imura et al., advocated histological examination of the entire lesion as the only reliable method for diagnosis [4]. On the other hand, Choi et al., reported a case of SNNL which was diagnosed on liver biopsy, which regressed spontaneously. Hence, they concluded that excision was unnecessary and that liver biopsy was the best modality for diagnosis and planning of treatment for this case [2]. In our study, complete excision of the lesion was done in one case; however, a wedge biopsy was done in the second case where multiple nodules were present.

The preferred treatment option for SNNL is complete surgical excision; however, recently, few authors suggested a conservative management and follow up in all cases, except for the ones with rapidly progressive lesions, in order to distinguish such lesions from hepatic metastases [2,4,5].

CONCLUSION

SNNL is a rare benign lesion which may arise from trauma, sclerosing haemangiomas or it may represent a burned out phase of various conditions like parasitic infections, or chronic infections like tuberculosis. An awareness of this lesion is very important, as it may be mistaken clinically and radiologically for a metastatic lesion. Histopathology provides the definite diagnosis and it thus helps clinicians in allaying unnecessary anxiety of the patient and in planning proper management.

REFERENCES

[1] Tsui WMS, Yuen RWS, Chow LTC, Tse CCH. Solitary necrotic nodule of the liver: parasitic origin? *J Clin Pathol*. 1992; 45: 975-78.
[2] Choi CS, Cho EY, Jeong JS, Im CJ, Yang BJ, Kim HC. Spontaneous regression of a solitary necrotic nodule of the liver. *Hepatol Int*. 2010; 4: 649-52.
[3] Patti R, Cabibi D, Sparacello M, Vita GD, Montalto G. Solitary necrotic nodule of the liver: differential pathological findings express a different histogenesis. *Case Rep Gastroenterol*. 2008; 2: 149-54.
[4] Imura S, Miyake K, Ikemoto T, Morine Y, Fujii M, Sano N, et al. Rapid-growing solitary necrotic nodule of the liver. *J. Med. Invest*. 2006; 53: 325-29.
[5] Zhou YM, Li B, Xu F, Wang B, Li DQ, Liu P, Yang JM. Clinical features of solitary necrotic nodule of the liver. *Hepatobiliary Pancreat Dis Int*. 2008; 7: 485- 89.
[6] Wang HQ, Wu ZS, Li DW. Solitary necrotic nodule of the liver: A report of two cases and review of the literature. *Case Reports in Hepatology*. 2011 Epub.

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