

dex I_2 was most satisfactory. Index I_2 was highly correlated with weight, subscapular skinfold thickness and was relatively independent of height. Rao(4) also found the index I_2 to have significant association with weight as well as with arm and calf circumferences (indicative of nutritional status).

In another study(5), the index I_2 was found to have high sensitivity, specificity and predictive value in detecting malnutrition in community surveys. Index I_2 has been shown to be very useful indicator of overweight in community surveys of obesity(6).

The index I_1 is well correlated with weight, it also has positive correlation with height, and a low correlation with subscapular skinfold measurement (Table III). This index is, however, unsatisfactory because it has a high correlation with height. Also in community surveys under-nutrition is believed to be independent of height(7,8).

The index, I_3 has the double disadvantage that it not only has a lower correlation with weight and subscapular skinfold thickness but also a negative correlation with height.

From the findings of the present study we recommend that the Quetelet's index (Body Mass Index) can be satisfactorily used in the nutritional surveys, this index being easy to calculate, independent of height, and is highly correlated with weight and the skinfold thickness.

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Hepatic Focal Nodular Hyperplasia

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Focal nodular hyperplasia is a rare benign hepatic tumor usually discovered in-

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cidently by imaging procedures(1). Ultrasound and computed tomography features of this condition have been described(1-3). We are reporting a case in which imaging modalities helped to confirm the diagnosis.

Case Report

A 2-year-old male child had recurrent episodes of projectile, non-bilious vomiting since the age of 2 months. There was no history of hematemesis, fever or loss of weight. On examination the child was moderately built and well nourished. The physical examination did not reveal any abnormality. Abdominal examination revealed a firm non-tender mass with rounded border in right hypochondriac region. It was moving with respiration and was not bimanually palpable. The mass could not be separated from the liver. A clinical impression of a liver mass was made. Sonographically the texture of the mass was similar to that of the liver and was in continuity with it. CT scan showed a mass in continuity with

the liver and was measuring 5×4 cm in size. Pre contrast scan showed the attenuation values of 88 HU in the mass and 98 HU in liver. Whereas a post contrast scan (*Fig. 1*) showed similar attenuation values in the liver and the mass (116 HU and 111 HU, respectively). A surgical excision biopsy confirmed the diagnosis of focal nodular hyperplasia (*Fig. 2*).

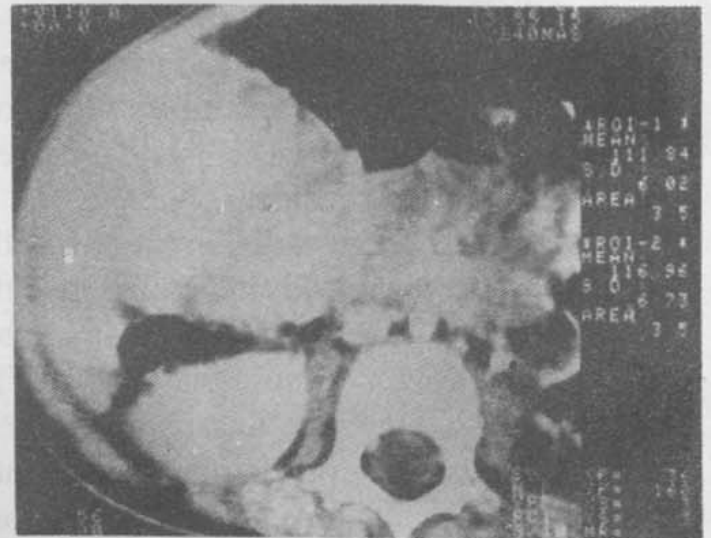


Fig. 1. Post contrast scan showing a mass in continuity with liver having similar attenuation values.

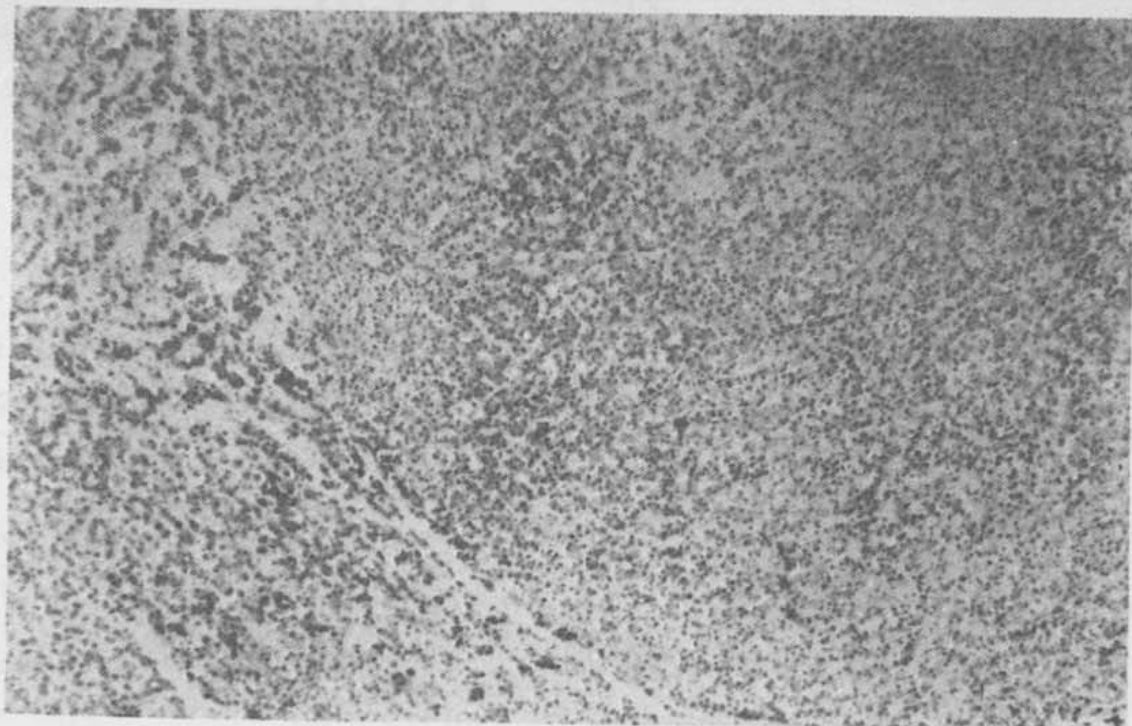


Fig. 2. Hyperplastic cells closely resembling normal liver cells are seen. No fibrous capsule is noted.

Discussion

The etiology of focal nodular hyperplasia is poorly understood. However, it has been postulated that focal nodular hyperplasia represents a regenerative response to vascular injury(4). There is no relation between focal nodular hyperplasia and consumption of birth control pills(5). In a series of 284 female patients of focal nodular hyperplasia only 11% were associated with the use of oral contraceptive agents(2). Its occurrence in children has been reported; to our knowledge the youngest patient diagnosed by imaging modality was a 19½ month old(6). Most of the cases are discovered incidentally or the patients present with nonspecific symptoms. Sometimes there may be a palpable liver mass. Our patient who was two years old, presented with projectile vomiting and on examination a mass was felt in continuity with the liver.

Ultrasound, being non-invasive and easily available, is the investigation of choice in these cases. Sonographically the lesions are isoechoic, hypoechoic or hyperechoic. In isoechoic lesions, change in the normal hepatic contour is an important sonographic feature. The margins of the lesions are well defined or indistinct. In a series of 10 cases reported by Rogers *et al.*(1), the sensitivity of ultrasound examination was 100%. The lesions were hypoechoic in four, hyperechoic in five and had a mixed echopattern in one. In our case an isoechoic lesion having a well defined margin with change in normal hepatic contour was noted which suggested the possibility of focal hepatic mass.

Computerised tomography is an excellent method for imaging the liver and provides diagnostic information for focal nodular hyperplasia. In a series of 14 pa-

tients reported by Welch *et al.*(2), on the precontrast scans 72% (ten cases) of lesions were hypodense, 14% (2 cases) were isodense and the lesions could not be seen in two cases (14%). After contrast administration 58% (8 cases) of lesions were isodense, 14% (2 cases) hypodense and 14% (2 cases) hyperdense and in 2 cases (14%) lesion could not be seen. It can be inferred that the detection of the lesion was not improved by the use of IV contrast medium. In our case the lesion detected was slightly hypodense as compared with normal liver whereas in the post contrast scan it was isodense (*Fig. 1*). A well circumscribed mass with an irregular stellate area of low density which corresponds to the central collagenous scar was thought to be diagnostic of focal nodular hyperplasia(6). However, Welch *et al.*(3), have reviewed 23 cases of focal nodular hyperplasia and according to them central scar is not commonly seen. In his series it was noted in 2 cases only. In our case also it was not seen.

Angiographically focal nodular hyperplasia presents as hypervascular lesions and parenchymal stains with septations. Fine radiating septations within parenchymal stain has been described as characteristic of focal nodular hyperplasia and are thought to be due to bands of fibrous tissue septae(3). Taking into consideration the risk involved with this invasive procedure our patient who was only 2 years old was not subjected to this investigation.

Differential diagnosis of this condition includes adenoma which exhibits mixed echogenicity and heterogenous texture on ultrasonography. On CT scan adenoma is generally hypodense initially becoming complex with a wide range of densities after contrast infusion. Hemorrhage and necrosis may be seen(1).

In a patient with a solitary hepatic, homogenous lesion which is slightly decreased in density on a CT or ultrasound scan combined with a deeply staining vascular lesion on an angiogram strongly suggests the possibility of focal nodular hyperplasia.

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Intracranial Teratoma in Early Infancy

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Intracranial teratoma is uncommon in infants less than a year old. It is defined as

true tumor composed of multiple tissues of a kind foreign to the part in which they arise. The incidence of these tumors is estimated to be between 0.3 and 0.6% of all intracranial neoplasms. In Cushing's 868 verified tumors, there were 4 teratomata, or 0.5%(1). The incidence increases to 2% if children upto 15 years are included(2). Those occurring in the newborn are a special variety which grow to a appreciable extent at very early period. We describe an immature teratoma in posterior fossa of a neonate.

Case Report

A 10-day-old boy was referred to Neurosurgery Unit for progressive macrocephaly and deterioration in the level of consciousness. He was born as full term but forceps were applied for delivery due to cephalo-pelvic disproportion. The Apgar scores were 8 and 9 at one and five minutes, respectively. His head circumference was 40 cm. The fontanelles were bulging, sutures were wide apart and had dilated scalp veins. MacEwen's sign was positive. The tonic neck and Moro's reflexes were present and equal. Deep tendon reflexes were increased in all four limbs and plantar responses were extensor bilaterally. Auscultation of the skull failed to reveal any intracranial bruits. The systemic examination was normal. His head circumference became 42 cm on tenth day after birth. He lost consciousness but was responding to painful stimuli.

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