

tribution is found in the anterior or lateral part of the tongue and contains both bone and cartilage usually more of the latter.

The etiopathogenesis of such tumors is not clear. It has been postulated(1-3) that ectopic embryonic rests of pleuripotential mesenchyma in the region of foramen of cecum give rise to such lesions. Another possibility suggested is the post-traumatic mesenchymal metaplasia(4) which results in osteochondroid growths usually in the anterior part of the tongue.

The present case seems to be congenital in origin and seems to fit better in the former category as in this location other developmental anomalies presenting in the pediatric age group also occur, viz., thyroglossal cysts and ectopic thyroid tissue. The large size and location of the present lesion coupled with the normal relaxation of pharyngeal musculature during sleep was responsible for the airway obstruction and attacks of apnea during sleep. This was confirmed by the relief of these symptoms after surgery. The predominant occurrence of lingual osteomas in females continues to be an enigma.

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## Acute Acalculous Cholecystitis in Typhoid Fever

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There has been an increase in number of cases of typhoid fever with rare complications(1). Acute acalculous cholecystitis (AAC) is one such complication. AAC is a rare disease in pediatric practice. The detection of 14 cases within a 5 month period is an indication of an increase in the incidence and awareness of AAC. The literature mentions *Salmonella* infections as a cause of cholecystitis with gallbladder involvement as a known component in the natural history of typhoid(2). The upsurge in multi-drug resistant and more virulent typhoid may explain the emergence of some of these complications(3).

#### Material and Methods

During the period January to June 1991, fourteen children with AAC were diagnosed at our hospital. All were admitted with a provisional diagnosis of typhoid

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*Received for publication: October 28, 1991;*

*Accepted: June 18, 1992*

fever. Ultrasound examination of the abdomen was indicated in children with vomiting, right upper quadrant pain/tenderness and palpable gallbladders.

A General Electric Datason and Philips orion scanners using 3.5 and 5 MHz transducers were used for scanning. Modified criteria for gallbladder wall thickening of 5 cm, sonographic Murphy's sign, gallbladder enlargement with diameter more than 5 cm, a round shape and pericholic collections in the absence of gallstones were used as diagnostic of AAC(4,5). All children were subjected to ultrasound examination in a fed state except for actually ill patients who had persistent vomiting or abdominal distention (3 cases). Repeat ultrasound examination was performed 1 week after admission or when the child was clinically better whichever was earlier.

The criteria for diagnosis of typhoid fever were mostly a positive blood culture for *S. typhi*. A positive Widal of 'O' titre more

than 1 in 80 and fever of more than 1 week where other causes of fever were eliminated, were taken as additional criteria when blood culture was sterile due to prior use of antibiotics.

All these children were managed conservatively with daily clinical monitoring and appropriate antibiotics. Intravenous fluids and nil per oral orders were followed as long as acute features of cholecystitis persisted. Only impending gallbladder perforation was kept as an indication for surgical intervention. No child underwent surgery and 12 of them had repeat ultrasounds confirming clinical recovery approximately 9.6 days after admission.

**Results**

The 14 children analysed had an age range of 14 months to 12 years with a male to female ratio of 11 : 3. They presented around the 10th day of fever with varied clinical features (Table I). Nearly 73% of

**TABLE I—Clinical Profile and Summary of Investigations**

Signs and Symptoms (%)					
Fever	14	(100)	Hepatomegaly	13	(93)
Vomiting	10	(71)	Splenomegaly	9	(64)
Abdominal pain	6	(43)	Palpable gallbladder	6	(43)
Abdominal distention	4	(29)	Pallor	6	(43)
Bowel disturbances	3	(21)	Ascites	5	(36)
Seizure, altered sensorium	3	(21)	Icterus	2	(14)

**Investigations**

SGOT > 40 U/L	14	(100)
SGPT > 60 U/L	11	(79)
Alkaline phosphates > 770 U/L	6	(43)
Ultrasound		
Max. diameter 5.0-10.0 cm	12	(86)
Wall thickness 0.3-1.0 cm	11	(79)
Biliary sludge	5	(36)
Ascites	6	(43)
Pericholic collection	9	(64)

these children had elevated Widal titers and 50% had *Salmonella typhi* grown in blood culture. *Salmonella paratyphi* and *Citrobacter* were grown in two cases. All the cases also had significantly elevated liver enzymes suggesting the possibility that AAC could be a spectrum of typhoid hepatitis. Various antibiotic combinations (ampicillin) (n=11), chloromycetin (n=10), ceftazidime (n=7), furazolidone (n=2), clotrimoxazole (n=1), cipro-floxacin (n=1)] were used. These were necessary for resistant salmonella infections noticed in our hospital. The clinical diagnosis of AAC was based on features of right upper abdominal pain/tenderness, excessive vomiting with or without a palpable gall bladder. Ultrasonographic scans confirmed all 14 cases having AAC using the above mentioned criteria. A total of 42% also had ascitis on scans. The findings are illustrated in Figs. 1 & 2. The average stay was 14.5 days and there were no deaths.

## Discussion

Acalculous cholecystitis implies simply

cholecystitis without stones, this acute inflammation of the gallbladder without stones is seen in 2-17% of all gallbladders removed for acute cholecystitis(5-8) and 30-50% of pediatric cases are acalculous(7,9). Typhoid complicated by cholecystitis has a reported incidence of 2.8% with 1.7% being acalculous(10) and recently there have been reports of AAC in Indian literature also(11,12). AAC usually occurs as a complication of other illness(13). In about half the cases the etiology can be found(14). In our study with 7 of 14 children confirmed as *Salmonella typhi* by blood cultures, the remaining 7 could be attributed to a similar etiology in view of the high degree of clinical suspicion and the absence of other factors.

Clinical features of these patients resemble those with calculous cholecystitis. Our study patients had right upper quadrant pain (43%), palpable gallbladder (43%), vomiting (17%), and fever (100%); findings similar to features reported in AAC(6,9,13).

Ultrasound is the investigation of choice(14,15) in such cases. The criteria for



Fig. 1. Ultrasound picture showing mucosal edema of the gallbladder.

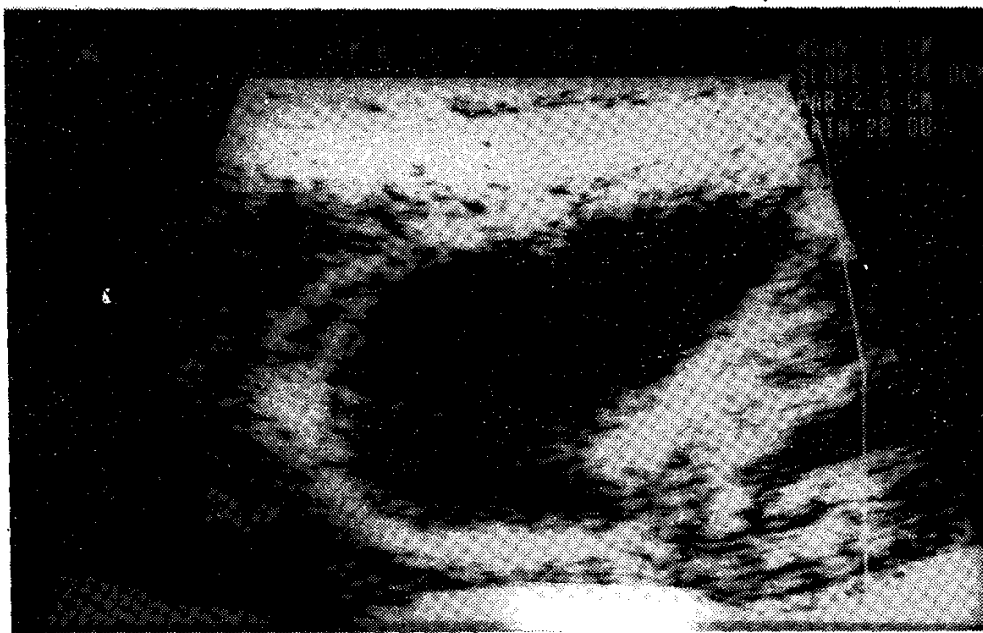


Fig. 2. Ultrasound picture of the gallbladder in the AAC showing thick mucosal wall, pericholic collection and biliary sludge.

AAC include gallbladder wall thickness  $>5$  cm, sonographic Murphy's sign, gallbladder enlargement 5 cm diameter, a round shape, pericholic collection and the absence of gallstones. With all our cases having a positive Murphy's sign, no calculi and an average gallbladder wall thickness of 8 cm, an average diameter of 7.7 cm and pericholic collection in 64% of cases, these criteria were invariably met.

A majority of the text books still recommend surgical intervention for AAC(6,14). However, recent articles appearing in the Indian literature do recommend a conservative line of management for AAC(11,16). We agree with this approach and would like to re-emphasize the same point of view.

We feel that typhoid AAC in children needs to be recognized as a distinct entity and the management be principally conservative. The management consists of IV fluids, appropriate antibiotic coverage, close clinical monitoring for worsening of

gallbladder findings. Nil per oral is advised only if there is persistent vomiting or abdominal distention. Patients recover well with this intensive clinical monitoring of signs and symptoms, supportive care and repeated ultrasound examinations of the abdomen.

To conclude in our experience there is a definite upsurge of AAC associated with the rise in multi-drug resistant typhoid. This emergence of a previously rare complication may be attributed to, the increasing virulence of *Salmonella typhi* infections. With a limited followup over 6 to 8 months, we found no evidence of carrier state and hence there may be no need for interval cholecystectomy. As we present this study, the recognition of this entity continues and the need for potent vaccines, potentiation of preventive aspects like hygiene, education and good water supply becomes a priority. What is needed is a prospective study to answer these questions.

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### Conservative Treatment of Bile Ascites in a Neonate

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Ascites of a greater degree which is not associated with generalized edema, is a rare occurrence in a neonate(1). Till now, less than 50 cases of bile ascites have been

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*Received for publication: December 31, 1991;  
Accepted: July 9, 1992*