Letters

Surgery for complicated pancreatic pseudocysts – report from a tertiary center

Pseudocysts may complicate 7%-15% of episodes of acute pancreatitis and 20%-25% of cases of chronic pancreatitis. Persistent pseudocysts may lead to a variety of serious complications, including infection, abscess formation, and bleeding from erosions into adjacent vessels. Currently, percutaneous drainage, surgical intervention, and endoscopic drainage are treatment modalities for management of pseudocysts.

We studied 29 patients with symptomatic (persistent pain, lump, gastric outlet obstruction) and/or complicated (infection, rupture, bleed) pseudocysts between June 2000 and July 2001. Eight patients who were candidates for endoscopic or percutaneous drainage or who did not give consent for surgery were excluded. The diagnosis was made by clinical features, hematological parameters and imaging. The diagnosis of infected pseudocyst was made by ultrasound/CT-guided aspiration and documentation of bacteria on gram stain and/or culture. Consent for surgery was taken after expaining the risk of surgery.

The preferred type of surgery was internal drainage (cystogastrostomy or Roux-en-y cystoenterostomy). External drainage was planned for infected and ruptured pseudocysts. Regardless of the technique of drainage selected, biopsy of the cyst wall was obtained to rule out true cyst or cystic neoplasm. Surgical success was defined as pseudocyst resolution with one surgical procedure; failure was defined as persistent symptomatic pseudocyst requiring two or more surgical procedures, or need for endoscopic or percutaneous method for drainage after surgery. Any complication or mortality occurring within 30 days of surgery was taken as post-operative complication or operative mortality. Patients were followed up with ultrasonography for recurrence of pseudocysts at 1, 3, 6 and 12 months.

Twenty-one patients (mean age 41.6 years, range 17-64; 15 men) underwent surgery. The etiology of pancreatitis was biliary in 11, alcohol in two cases with chronic pancreatitis, malignancy in one, and idiopathic in seven. The mean interval from acute attack to surgical intervention was 139 days (range 35-365). Surgical intervention was done before 6 weeks in one patient, at 6-7 weeks in two cases, at 7-12 weeks in 8 cases, and after 12 weeks in 10 cases (8 cases before 9 months, two cases after 9 months).

The indications for surgical intervention were as follows: lump with pain (9), infected pseudocyst (7), rupture (3), intracystic bleed (1), and obstructive jaundice (1). Three patients with non-resolving pseudocysts causing persistent pain and/or obstructive symptoms had a recurrent pseudocyst (two had earlier undergone surgery and one had percutaneous drainage done outside). One patient had puerperal portal vein thrombosis with ascites. The eleven patients with biliary pancreatitis underwent cholecystectomy at the same surgery. All the operations were open. The patient with common bile duct stricture had a long stricture.

Internal drainage was done in 10 patients. All of them had pseudocysts with mature wall and wall thickness of >10 mm. Of these, 9 patients underwent cystogastrostomy and one had cystojejunostomy. External drainage was done in 11 patients, of whom 7 had infected pseudocyst, 3 had ruptured pseudocyst and one had pressure on the common bile duct. All of them also had premature wall of the pseudocyst. The mean duration of external drainage was 44 days (range 7-90). The mean hospital stay for patients with internal drainage was 14 days (range 10-22).

Postoperative complications were observed in 6 patients who underwent external drainage. All had pancreatic fistula that responded to conservative treatment. Other complications were sepsisemia with multisystem organ failure (MSOF) in one patient (he died), surgical site infection in 5 patients, prolonged fever with chest infection in 3 patients, and prolonged ileus in one patient. The patient with intracystic splenic artery bleed was managed by angioembolization.

All patients were followed up for a mean period of 12 months (range 8-14). Follow-up ultrasonography showed no recurrence of the pseudocyst. Nineteen of the 20 patients on follow up are doing well. The patient with malignancy died 6 months after surgery.

External drainage is used when there is a misdiagnosis, the risk of anastomotic dehiscence is high because of infected pseudocyst, or when the wall is immature. The disadvantages of external drainage are hemorrhage from mechanical abrasion by the drainage tube, frequent development of secondary infection, persistent pancreatic fistula (in 10% of cases), disease recurrence rate of 18%, and high mortality rate of 10%. The high mortality rate is often due to the poor condition of the patient. In our study the mortality rate for external drainage was 1/11 (9%). Internal drainage is the surgical procedure of choice for all uncomplicated mature pseudocysts. Cystogastrostomy is done for cysts densely adherent to the posterior wall of the stomach. Cystojejunostomy is indicated for pseudocysts in the head and uncinate process of the pancreas. Cystojejunostomy is appropriate for all other cysts and for extremely large pseudocysts (>15 cm) in order to achieve dependent drainage. Ten of our patients underwent internal drainage, and none died.

Data from two recent studies of 144 patients showed a surgical mortality rate of <1%, morbidity of 28%, and recurrence rate of 6%. There was no recur-

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ence in our patients and the mortality rate was 4.7%.

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mment of pseudocysts in patients with chronic pancreatitis.

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Immunogenicity and safety of 10 mg and 20 mg doses of Genevac-B, a recombinant hepatitis B vaccine, in healthy adolescents

The WHO has recommended that low-dose hepatitis B vaccine studies be conducted to reduce the cost of vaccination in endemic areas of the world.1 Several studies have addressed this issue of immunogenicity vis-a-vis cost-efﬁciency for mass immunization programs.2,3,4 We evaluated the immunogenicity and safety of two dose strengths of a new indigenous recombinant DNA vaccine, Genevac-B (Serum Institute of India, Pune), among healthy adolescents.

Two hundred children studying at the CHS Kamraj Avenue Corporation Higher Secondary School, Adyar, Chennai, were recruited after obtaining written informed consent from the guardians. The criteria for inclusion were: healthy adolescents aged 11-19 years of either sex; tested negative for HBsAg, anti-HBs, and anti-HBc IgM; no history of HBV vaccination in the past; no evidence of skin disease or infection at any site. The exclusion criteria were: inability to come for follow up; subjects enrolled in another vaccination trial; known history of hepatitis B infection/carer state; subjects with hepatomegaly and/or splenomegaly; known allergy to aluminium; uncontrolled coagulopathy; treatment with immunosuppressors including corticosteroids; administration of immunoglobulins or blood-derived products in the last 6 months or plan to receive such product in the next 7 months; previous history of treatment with extracted growth hormone.

The children were subjected to pre-vaccination clinical history and examination using a structured pro-forma, screening for hepatitis B virus as described, besides subjecting them to hematological and biochemical studies (liver and renal proﬁle). They were randomly allocated to receive 1 mL (20 μg) dose or 0.5 mL (10 μg) dose of the vaccine. The vaccine was administered in the deltoid muscle at 0, 1 and 6 months. Following each dose, the subjects were observed for adverse events. Blood samples collected one month after each dose were stored at -70°C until tested. They were assayed for quantitative levels of anti-HBs (Monolisa Anti HBs 3.0 BIORAD; Sanapastuer) Seroconversion rates were deﬁned as anti-HBs titer ≥1 mIU/mL and <10 mIU/mL, and seroprotection rates were defined as anti-HBs titer ≥10 mIU/mL. Anti-HBs values, expressed as geometric mean titers (GMT), were compared using Fisher’s exact test.

One hundred children each received the 20 μg and 10 μg doses. Follow-up at 7 months was available in 94/ 100 in the 20-μg dose group and 96/100 in the 10-μg group. Seroconversion and seroprotection rates on completion of the schedule were 100% in both dosage schedules (Table). The anti-HBs GMT levels achieved were similar with the two doses.

Table: Immunogenicity data of vaccines who received 20 μg and 10 μg dosage schedule

<table>
<thead>
<tr>
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<th>1st dose</th>
<th>One month after</th>
<th>3rd dose</th>
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<tbody>
<tr>
<td>Seroconversion</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20μg</td>
<td>46.8%</td>
<td>94.6%</td>
<td>100%</td>
</tr>
<tr>
<td>10μg</td>
<td>37.5%</td>
<td>92.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Seroconversion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20μg</td>
<td>19.1%</td>
<td>86.1%</td>
<td>100%</td>
</tr>
<tr>
<td>10μg</td>
<td>10.4%</td>
<td>70.8%</td>
<td>100%</td>
</tr>
<tr>
<td>Seroconversion</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20μg</td>
<td>14.47</td>
<td>94.30</td>
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<tr>
<td>10μg</td>
<td>13.88</td>
<td>48.39</td>
<td>1372.80</td>
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Pain at the site of injection (8/104 and 9/106) in the 20 μg and 10 μg groups, respectively, and fever in 4/20 and 1/20 were the only symptoms. Swelling at the injection site was seen in 2/106 vaccines who received the 10-μg dose. Hematological and biochemical parameters remained normal in both the groups.

Thus, Genevac-B has acceptable immunogenicity and safety proﬁle for human administration.

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