available method used for diagnosis of tuberculosis. Though direct smear microscopy has the advantage of being simple to perform, rapid, less cumbersome, and above all it is inexpensive it has a major disadvantage of having a discouragingly low sensitivity. Therefore, if only direct microscopic method was used for diagnosis, around 22.6% cases with lower AFB counts would have been missed in our study. The significant increase in the smear sensitivity from 98 in direct microscopy to 126 by NaOCl treatment in our study may be attributable to clearer microscopic field due to reduction of the debris. Further, NaOCl method has the advantage of being available at low cost as household bleach, which also limits the risk of laboratory infection as a potent disinfectant. However, it was observed that all the three methods were equally sensitive in detecting positive cases with higher count (i.e., scoring 2+ and more).

To conclude, the overnight delay in obtaining the results may be a drawback of the NaOCl sedimentation method, but the method has an advantage of being less cumbersome and cost effective to improve the sensitivity of direct microscopy without requiring any special equipments, thus can be easily used under the existing conditions of smaller laboratories and primary health centers particularly in a developing country like ours.

References
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Submission: 09-4-2008
Accepted: 17-7-2008

Writing Pens as Fomites in Hospital

Dear Editor,

Healthcare-associated infections persist as a major problem in many hospitals. These infections are usually caused by multidrug resistant bacteria that are associated with much morbidity, mortality, and excess healthcare cost. Although microorganisms are most commonly transmitted by the hands of healthcare personnel, materials and articles used in the hospitals could also carry microorganisms. We systematically studied bacterial contamination of pens used by healthcare personnel in intensive care units of a hospital and studied the duration of bacterial survival on pens.

Seventy-five writing pens used by doctors and nurses in intensive care units were collected aseptically and studied. Each pen was swabbed using a sterile cotton swab moistened with saline. The swab was then inoculated on blood agar and Mac Conkey’s agar plates and incubated at 37 °C for 24-48 hours. The plates were examined for bacterial growth. The bacteria were identified using standard methods. Antibiotic susceptibility of the bacteria was tested using Kirby–Bauer disk diffusion method. Methicillin resistance in Staphylococcus aureus was detected by agar screen method using Mueller–Hinton agar containing 6 μg oxacillin/mL and 4% NaCl.

We also studied the extent of survival of S. aureus on three kinds of new pens – all metal pens, all plastic pens, and pens with rubber grip. Saline suspension of a clinical isolate of S. aureus adjusted to Mc Farland 0.5 standard (bacterial count 1.5 x 10⁸ colony forming units/ml) was prepared and 0.01 ml of the suspension was smeared on the pens (five pens for each experiment). The inoculated pens were kept at 25 °C and examined for surviving bacteria at different time intervals. The pens were swabbed using sterile cotton swab moistened with saline. The swabs were inoculated on blood agar plate and incubated at 37 °C for 24 hours and colony count determined.

Out of 75 pens studied, 26 (34.6%) were contaminated with bacteria (Table 1). Staphylococcus epidermidis was isolated from 16 pens. S. aureus was isolated from six pens, of which two were methicillin resistant. New pens
were deliberately contaminated with S. aureus to determine the extent of survival of bacteria. S. aureus survived up to 48 hours on rubber grip pens, whereas the minimum duration of survival was observed on plastic pens and pens with metal body (24 hours and 18 hours, respectively).

Our findings indicate that the pens used by healthcare personnel in intensive care units can be contaminated with bacteria. This is in agreement with the findings of a previous study. However, another group of workers could not show bacterial contamination of pens. Several factors such as duration of usage, type of pen, number of persons using the pen may influence the rate of contamination of pens. We showed that S. aureus survives longer on rubber grips of the pens. Isolation of methicillin resistant S. aureus is a matter of concern. One critical aspect of bacterial transmission from person or from environment to a person is the ability of the microbe to survive on environmental surface. Careful use of pens and handwashing will help prevent transmission of bacteria from contaminated pens. Usage of pens with metal body may be encouraged in hospitals.

### Acknowledgments

The authors thank the Dean, Chief Operating Officer, and all healthcare personnel who provided the used pens for the study.

### References


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Submission: 10-4-2008
Accepted: 04-5-2008

### Table 1: Bacteria isolated from used pens

<table>
<thead>
<tr>
<th>Bacteria isolated</th>
<th>No. of pens contaminated</th>
<th>Rate of contamination (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staphylococcus epidermidis</td>
<td>16</td>
<td>21.3</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>6</td>
<td>7.9</td>
</tr>
<tr>
<td>Bacillus spp</td>
<td>4</td>
<td>5.3</td>
</tr>
<tr>
<td>Diphtheroids</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Micrococcus spp.</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>S. epidermidis and S. aureus</td>
<td>1</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Visceral Leishmaniasis Simulating Chronic Liver Disease: Successful Treatment with Miltefosine

Dear Editor,

A 45-year-old non-alcoholic male resident of Bihar, an Indian state endemic for Kala-azar, was admitted with high-grade fever associated with chills and rigor, pain in the left upper abdomen, anorexia and weight loss for 1½ months. He had severe pallor, bilateral pedal oedema, non-tender hepatosplenomegaly and ascites. Investigations revealed haemoglobin of 5.5 g/dL, total leukocyte count 1.4x10\(^3\)/mm\(^3\), platelet count 60x10\(^3\)/mm\(^3\), ESR 78 mm/h and peripheral smear suggestive of pancytopenia. Bone marrow smear showed plasma cells and Leishman donovan (LD) bodies. Indirect immunofluorescent antibody test (IFAT) for Kala-azar was positive (titre 1:1600). Serum bilirubin was 1.2 mg/dL, serum alanine aminotransferase 20 U/L, serum aspartate aminotransferase 16 U/L, serum alkaline phosphatase 240 U/L and total serum protein 10.7 g/dL (albumin 1.44 g/dL). Prothrombin time (PT) was 25 (13 s) and activated partial thromboplastin time (aPTT) was 50 (28 s). Protein electrophoresis was suggestive of chronic inflammation and hypoalbuminaemia without any M-spike. Urine examination revealed albumin +++, Bence–Jones protein negative and 24-h urinary protein was 1312 mg. Hepatitis B surface antigen, antihepatitis C virus and enzyme-linked immunosorbent assay for human immunodeficiency virus were negative. Ultrasound of the abdomen showed hepatomegaly (14 cm), massive splenomegaly (> 19 cm), borderline portal hypertension (portal vein size 13 mm) and ascites. Ascitic fluid was transudative in nature. Upper gastrointestinal endoscopy was normal. Liver and renal biopsies could not be performed as patient refused to consent. The patient was put on tablet Miltefosine 50 mg U/L and total serum protein 10.7 g/dL (albumin 1.44 g/dL). Prothrombin time (PT) was 25 (13 s) and activated partial thromboplastin time (aPTT) was 50 (28 s). Protein electrophoresis was suggestive of chronic inflammation and hypoalbuminaemia without any M-spike. Urine examination revealed albumin +++, Bence–Jones protein negative and 24-h urinary protein was 1312 mg. Hepatitis B surface antigen, antihepatitis C virus and enzyme-linked immunosorbent assay for human immunodeficiency virus were negative. Ultrasound of the abdomen showed hepatomegaly (14 cm), massive splenomegaly (> 19 cm), borderline portal hypertension (portal vein size 13 mm) and ascites. Ascitic fluid was transudative in nature. Upper gastrointestinal endoscopy was normal. Liver and renal biopsies could not be performed as patient refused to consent. The patient was put on tablet Miltefosine 50 mg