A Safe and Easy Method for Hematology Practicals

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Abstract

A new method for hematology practicals, in which a rubber bulb is used to collect blood sample instead of the old method of mouth pipetting, has been described in this paper. The new method is easier and safer. A comparative study of both the methods has been made with a photographic presentation for better understanding and for validating the new method.

Keywords: Glass bottle top dispenser, Hematology practicals, Mouth pipetting, Rubber bulb.

Introduction

In India, hematology practicals are usually undertaken by medical, dental, and paramedical students. Each year, a total of 67,352 medical and 27,000 dental students are taking their admission in medical and dental colleges.1 At present, mouth pipetting is done in hematology practicals. It involves hemoglobin determination, total red blood cell count (total RBC count), total white blood cell count (total WBC count), and platelet count. It is also a common practice in Primary Health Centers and small private diagnostic laboratories.

Mouth pipetting can cause oral aspiration through pipettes into the mouth and this may lead to infections.2 Mouth pipetting is hazardous.3 At present, many practical textbooks still describe mouth pipetting for blood sample collection.4–10 Earlier, we have shown the method of dilution for red blood cell count and charging of the Neubauer chamber with a glass capillary.11 The use of a rubber bulb provides a safe and easy method for the collection of blood, dilution, and charging of the Neubauer chamber in hematology practicals. The collection of blood by mouth pipetting is avoided.

Method

Hemoglobin Pipette (Hb pipette) with Borosil Rubber Bulb

Hb pipette with a rubber tube is used. Only 1.50 cm of the rubber tube is used over the Hb pipette. The remaining part of the rubber tube with a mouthpiece is cut and removed. Over the Hb pipette with a rubber tube, a Borosil rubber bulb (from Borosil bottle dropping with a pipette and RT-30 mL size) is attached. This helps in easy collection of blood from the puncture site over the fingertip. After taking aseptic precautions, finger prick will be done. With minimum pressure on the rubber bulb, blood will be drawn into the pipette by releasing the pressure on the bulb.

The glass bottle top dispenser is used for dilution. The WBC diluting fluid is taken in this bottle (Merck). It is adjusted to dispense 0.4 mL (400 µL) in the 5 mL test tube. Then, 20 µL blood drawn with hemoglobin pipette is added to it. It is mixed by gentle shaking. The dilution is 1:21 after adding 20 µL of blood. The glass capillary tube is used to collect the blood mixed with the diluting fluid to charge the Neubauer chamber. This method is easier in comparison to the conventional method as pipette is not used for charging the chamber. WBC count is done under 10× magnification. The photographs depict about both the conventional method (the usual method) and the new simple method (Figs 1A and B).

The new method can be used for hemoglobin and RBC count determination (4 mL of Hayem's diluting fluid; dilution 1:201 after adding 20 µL of blood) and platelet count (dilution 1:201 after adding 20 µL of blood). It is safer and easier for the students to perform hematology practicals.

Discussion

The new method has been found easier for the students to perform hematology practicals. Since only hemoglobin pipette is used, it is easier to clean as it does not have a bulb. When dispenser bottle...
<table>
<thead>
<tr>
<th>Steps</th>
<th>Conventional method</th>
<th>New modified method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection of blood</td>
<td>Collection of blood sample by mouth pipetting</td>
<td>Collection of blood sample by using pipette with rubber bulb</td>
</tr>
<tr>
<td>Dilution of blood sample</td>
<td>Mouth pipetting of dilution fluid</td>
<td>Dilution fluid dispenser</td>
</tr>
<tr>
<td>Mixing of blood sample</td>
<td>Charging with pipette</td>
<td>Capillary tube</td>
</tr>
<tr>
<td>Charging</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1B: Hematology practicals by conventional method and new method
is not available, 1 mL and 5 mL syringes can be used to add the diluting fluid into the test tube to which blood sample can be added.

**Conclusion**

It is concluded that medical and allied students should use the new method while conducting hematology practicals as it not only gives accurate and authentic results but it is also easier and safer.

**Acknowledgments**

We are thankful to Mr Suresh Varghese and Mrs Licy Kunjumon MGM Medical College, Navi Mumbai, India, for extending their help in the Physiology Laboratory for conducting the hematology practicals. A special word of appreciation shall go to Mr Shridhar Tambatkar, photographer, for taking photographs.

**References**