CLINICAL SNAPSHOT

A Problem with the Separating Gel in a Blood Sample Tube in a Patient with Multiple Myeloma

Blood sample tubes that contain a separating gel are often used to obtain blood serum for laboratory tests. After centrifugation, the inert acrylic gel at the bottom of the tube normally occupies the middle position between the cells (clot) and the serum, as its density is intermediate between theirs. The gel then serves as a barrier to diffusion, preventing contamination of the serum with cellular components. Unusually, in a 52-year-old man with multiple myeloma, the gel did not constitute a separating barrier; instead, despite correct centrifugation, it lay on top of the serum fraction. The patient's underlying disease was suspected to be the cause. As a consequence of multiple myeloma, his serum IgA concentration was 76.5 g/L (reference range: 0.7–5.0 g/L), and his total protein concentration was 140 g/L (reference range: 66–83 g/L). This marked hyperproteinemia made the serum denser than the separating gel, which therefore rose above it during centrifugation. This phenomenon is seen in very advanced cases of myeloma; as an iatrogenic effect after the administration of iodinated radiologic contrast media; and in dialysis patients, when blood is taken from catheter systems in which a concentrated sodium citrate solution is used as a blocking solution. This case reminds us to consider multiple myeloma whenever this phenomenon is seen.

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