Bilirubinuria: An elusive symptom among diapered infants

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A well-appearing term baby was admitted on day 6 of life with non-hemolytic jaundice for initiation of phototherapy. He reportedly fed well and had pigmented stools and clear urine (Figure 1A). Clinical examination was otherwise unremarkable.

Response to phototherapy was slow. He developed fever after 24 hours of phototherapy. Urine sample obtained in a clear container as part of an infective screen revealed tea-coloured urine (Figure 1C) which had eluded visible detection in baby's diaper. It was positive for urobilinogen and negative for blood. Bilirubinuria thus prompted a detailed evaluation of pathological jaundice. Liver function revealed conjugated jaundice and moderate elevation of transaminases. Ultrasound showed a normal-sized liver with coarse echotexture. Severe coagulopathy, hyperferritinemia, and iron deposition in the liver and pancreas on Magnetic Resonance Imaging confirmed Gestational Alloimmune Liver Disease.(1) He was treated with liver supportive measures, antibiotics, blood products, and intravenous immunoglobulin.(2) He succumbed to fulminant hepatic failure. Extensive infective, metabolic, and genetic workup returned negative.

Bilirubinuria stains cotton and cloth diapers. It is an early symptom of conjugated hyperbilirubinemia. (3) However, modern diaper technology, directed to skin protection may reduce the reliability of detecting bilirubinuria (Figure 1A). The polypropylene top sheet lining the surface of modern diapers allows urine to pass through uni-directionally to the next absorbent layer making the classical tea-coloured stains of conjugated urine less visible. (4) With modern diapers gaining worldwide popularity,[5] healthcare providers and parents are unlikely to spot bilirubinuria. When conjugated hyperbilirubinemia is suspected, urine is best inspected in a clear container.

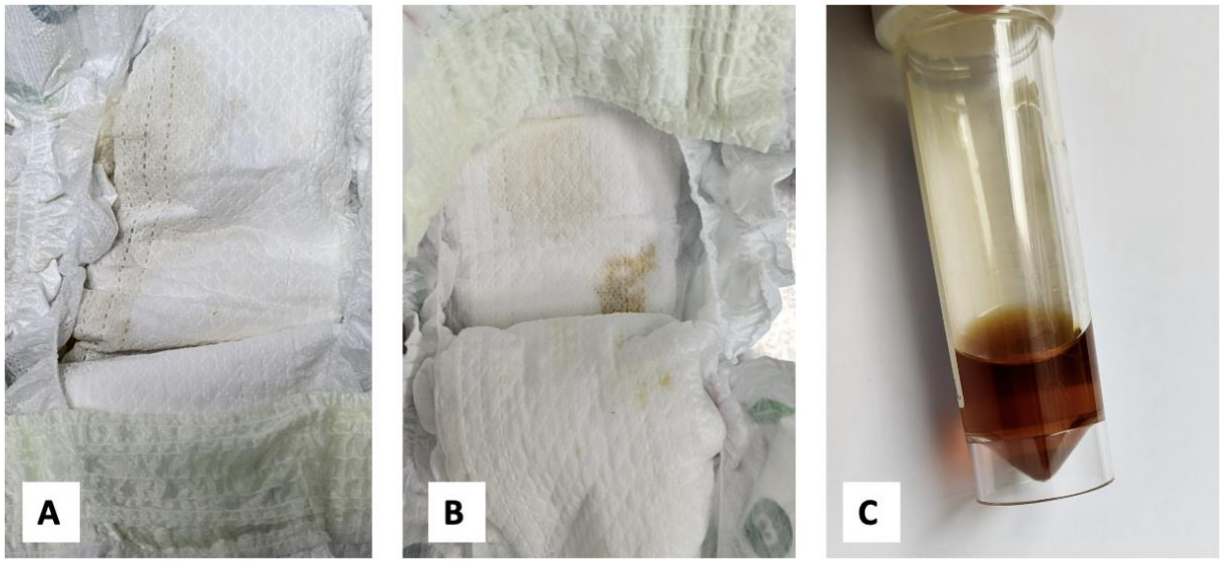


Figure 1: (A) Urine-soaked diaper of patient, (B) Urine-soaked diaper of a healthy neonate with unconjugated jaundice for comparison, (C) Classic tea-coloured urine of patient with conjugated jaundice

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