

# Accidental Ingestion of Methylated Spirit in a Day Old Neonate

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## Abstract

**Introduction:** Unintentional paediatric poisoning remains a major public health issue worldwide. Practice of cord care varies in various places; in Nigeria methylated spirit is commonly used but no report from poisoning following its use. There is no available poisoning data from Gusau, North Western Nigeria, we report a day old neonate accidentally given methylated spirit assumed to be medication whom was managed in our hospital. **Case report:** Baby I.J is a-day-old male term neonate who presented with 3 hours history of ingestion of methylated spirit and 2 hours history of difficulty in breathing. He was accidentally given a bottle cap full of methylated spirit by a care giver thought to be medication in a hospital. He was managed with oxygen and antibiotics. **Conclusion:** Accidental ingestion of methylated spirit is uncommon, even though methylated spirit is a common household agent used for cord care and cleaning minor wounds. Caution should be taken when taking care of newborns, high index of suspicion is required when considering neonatal poisoning. Medications should not be given to newborns by any care giver unless assigned by the mother or given by health personnel.

**Keywords:** Methylated spirit; Neonate; Poisoning

## Introduction

Unintentional paediatric poisoning remains a major public health issue worldwide.<sup>[1]</sup> In developed countries, poisonings have no or limited clinical effects, rather it puts substantial burden on health care systems.<sup>[1]</sup> Practice of cord care varies in various places from using alcohol, methylated spirit, povidone iodine or chlorhexidine to clean the cord, in Nigeria methylated spirit is commonly used.

Methylated spirits is a common household product which is readily available at a range of retail outlets like chemists and pharmacies. It is composed of 70–99% ethanol, water and denatonium benzoate.<sup>[2]</sup> Denatonium benzoate is added to make it have an intensely bitter taste so as to reduce the amount of liquid likely to be consumed accidentally.<sup>[2]</sup>

Methylated spirits is not classified as acutely toxic, but ingestion of small quantities can cause serious health effects due to the high ethanol concentration.<sup>[2]</sup> There is no data available on the acute toxicity of the product sold as methylated spirits.<sup>[2]</sup> Accidental poisoning in children have been reported from different centres in Nigeria but few have reported on poisoning in neonates.<sup>[3,4]</sup>

There is no available poisoning data from Gusau, North Western Nigeria, we report a day old neonate accidentally given methylated spirit assumed to be medication whom was managed in our hospital. This is a rare presentation of poisoning in a

newborn and this case highlights the need to have a high index of suspicion with regards to poisoning in any child irrespective of the age.

## Case Report

Baby I.J is a-day-old male term neonate who presented to our hospital with 3 hours history of ingestion of methylated spirit and 2 hours history of difficulty in breathing. He was accidentally given a bottle cap full of methylated spirit by a care giver thought to be medication in the referral hospital. He was subsequently breast fed and vomited 2 times, though there was denial of induced vomiting. He later developed difficulty in breathing and cough, but no associated bluish discoloration nor fever.

Pregnancy was unsupervised and he was delivered at a peripheral hospital via emergency caesarean section on account of prolonged obstructed labour to a grand multiparous woman (Para 11). Birth weight was 2.7 kilograms.

On examination, he was acutely ill looking, afebrile and not

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cyanosed. He was tachypnoeic with respiratory rate of 90 cycles/min and dyspnoeic. He had secretions from the nose and mouth. There was decreased air entry with crepitations in both lung fields. Oxygen saturation in room air was 90%. Heart rate was 160 beats per minute, regular and heart sounds were normal.

A diagnosis of aspiration pneumonitis secondary to methylated spirit ingestion was made. Secretions were suctioned and he was placed on intranasal oxygen at 2 litres/minute, intravenous antibiotics (Ampiclox with Gentamicin) and maintenance intravenous fluid (10% dextrose at 60 ml/kg body weight over 24 hours at 7 drops/minute). Full blood count and differentials; chest x-ray; urea, electrolytes and creatinine were requested. Electrocardiogram is not done in neonates in our hospital due to lack of appropriate leads, hence not requested. The investigations were not done as the father did not pay at all.

Eleven hours after admission, he developed fever and oxygen saturation dropped to 84%. He was still dyspnoeic and tachypnoeic, oxygen therapy was continued. After 24 hours of admission, oxygen saturation on oxygen was 99% and 90% in room air, baby remained stable.

The father requested for discharge against medical advice after 48 hours of admission despite counselling; because the baby was better and perceived he no longer required oxygen. Baby was discharged on syrup Ampiclox, however on follow up phone call he was found to be well after discharge.

## Discussion and Conclusion

Poisoning in neonates is not common which makes data of accidental or non-accidental poisoning in neonates to be few.<sup>[3-5]</sup> Poisoning from methylated spirit is also uncommon, data are also few in children.<sup>[2,6]</sup>

Even though methylated spirit is used for cord care in neonates, the mother of our index case knows the use, a care giver assumed it was meant for ingestion and without consulting the mother gave the baby. Aspiration is not common with a little volume, but there is the possibility of induced vomiting after breastfeeding the baby which could have resulted in aspiration and led to the cough and difficulty in breathing in our index case.

There is no available data on aspiration of methylated spirit in neonates to the best of our knowledge; hence the need to present this unusual case so that it can be a warning to put on alert for similar situations.

Data from the New Zealand Poisons Call Centre ranks methylated spirits between 6<sup>th</sup> and 12<sup>th</sup> annual most common cause of calls over the period 2008–2012.<sup>[2]</sup> The majority of calls across all age groups relate to ingestion of methylated spirits. Smaller numbers of calls relate to eye, skin and inhalation exposures. Approximately 40% of calls relate to 0–3 year olds being exposed to methylated spirits during exploratory play.<sup>[2]</sup>

Ethanol is rapidly absorbed from the gastrointestinal tract into

the blood stream providing systemic exposure to the chemical.<sup>[2]</sup> Acute systemic exposure to ethanol and its metabolites can result in behavioural and motor coordination changes at low level blood alcohol concentrations. Higher levels of blood alcohol lead to depression of the respiratory system, with the possibility of coma and death.<sup>[2]</sup> Other symptoms of acute alcohol intake include memory loss, nausea and vomiting. Aspiration of vomit by drowsy or unconscious people who have consumed ethanol can also lead to death.<sup>[2]</sup>

Young children are at higher risk of poisoning from the ethanol in methylated spirit due to their small body size compared to the amount of product they may have consumed.<sup>[2]</sup> Children under five years may also have limitation in the metabolism of the ethanol due to their immature hepatic ethanol dehydrogenase activity.<sup>[7]</sup>

In New Zealand, of the 123 incidents of methylated spirit poisoning involving children under four years of age, 119 were due to exploratory play and 4 due to unintentional exposures.<sup>[2]</sup> Hospital admissions data in New Zealand between 2006 to 2012 showed there have been 73 hospital events associated with methylated spirits. However, none occurred in children under the age of 15 years.<sup>[2]</sup>

Accidental poisoning in neonates is uncommon; a six hour old baby was reported in Zaria by Abdulkadir et al.<sup>[3]</sup> who presented with shortness of breath and haematemesis five hours after accidental ingestion of sulfuric acid.

A three day old neonate was reported from Kano<sup>[4]</sup> with clinical features initially thought to be due to neonatal seizures and sepsis, but later found to be due to non-accidental dettol poisoning by a single mother.

In another report from Kano by Belonwu et al.<sup>[6]</sup> on childhood poisoning, two children both 3 years of age ingested methylated spirit and they both presented with cough and difficulty in breathing. In Burkina Faso,<sup>[5]</sup> 1.3% of their admissions were from poisoning which included a 6 day old neonate, though cause of poisoning was not stated. Many studies on childhood poisoning reported on poisoning in children beyond infancy period but none reported poisoning with methylated spirit.<sup>[8-13]</sup>

We followed up the baby by phone call and he was found to be in stable condition since discharge. This report recommends proper storage of poisonous chemicals and proper health education of mothers and other care givers on dispensing medications. There is also need for establishing poison control or toxicologic screening centres in Nigeria with branches in all the 36 states which will assist in the management of poisoning cases.

Baby JJ accidentally ingested methylated spirit in a hospital which could have been prevented if medications were not served by care givers. Accidental ingestion of methylated spirit is uncommon, even though methylated spirit is a common household agent used for cord care and cleaning minor wounds. Caution should be taken when taking care of newborns, high

index of suspicion is required when considering neonatal poisoning. Medications should not be given to newborns by any care giver unless assigned by the mother or given by health personnel.

### Conflict of Interest

All authors disclose that there was no conflict of interest.

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