



Unintentional Intravenous Administration of Enteral Nutrition in a Dog: A Case Report on Medical Error and Recovery

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Background

Medical errors, the majority being medication errors, occur in approximately 0.5% of veterinary consultations. Accidental intravenous administration of enteral nutrition in human medicine leads to sepsis, multiorgan dysfunction, coagulation disorders, long-term neurological deficits, and often death. This case describes a medical error with a favorable outcome.

Case summary

A 1-year-old spayed female Australian Shepherd presented in status epilepticus, already treated with phenobarbital (2.5mg/kg BID) and continuous rate infusion (CRI) of midazolam (0.2mg/kg/h). Initial treatment included hypertonic saline (4mL/kg), levetiracetam (60mg/kg, then 30mg/kg TID), midazolam CRI (0.2mg/kg/h), phenobarbital (5mg/kg, then 2.5mg/kg BID), and maropitant (1mg/kg SID). Blood work, magnetic Resonance Imaging and cerebrospinal fluid analysis were unremarkable. The dog developed hypoventilation (PvCO₂: 80mmHg), requiring mechanical ventilation (MV). Nystagmus, tachycardia, and transient hyperthermia initially persisted during MV, and were managed with ketamine (5mg/kg) and propofol CRI (0.2mg/kg/min).



COMPOSITION:

Milk and milk derivatives, cereals, oils and fats, vegetable protein extracts, minerals, derivatives of vegetable origin.
Low lactose milk, caseinate, soya protein isolate, maltodextrin.

Fig. 1 – Picture and composition of Gastrointestinal Low-Fat Liquid (Royal Canin, Aimargues, France)

Metoclopramide CRI (0.2mg/kg/day) and enteral nutrition (20% Resting Energy Requirement [RER]) via a nasogastric tube were initiated.

The dog recovered and was weaned off MV, propofol, and midazolam by day 4, with enteral nutrition gradually increased to 150% of RER.



Fig. 2 – AI generated cartoon

On day 8, approximately 50mL (estimated from time of syringe connection to onset of clinical deterioration) of low-fat gastrointestinal enteral nutrition was inadvertently administered intravenously. The dog became hyperthermic (40.1°C), lethargic, laterally recumbent, tachycardic (140 beats per minute), with a systolic blood pressure of 90mmHg. Amoxicillin-clavulanic acid (20 mg/kg QID) and marbofloxacin (4 mg/kg SID) were administered. Daily performed blood work, urinalysis, vascular and cardiac ultrasounds, revealed no significant abnormalities. Urine and blood culture were negative.

Hyperthermia resolved after 24 hours, although the dog remained obtunded in lateral recumbency until day 13, walked with mild ataxia on day 16, and fully recovered by day 20, when she was discharged. Antibiotics were discontinued two weeks later, when clinical examination and blood work had remained unremarkable.

Discussion

Inadvertent intravenous administration of enteral nutrition is a critical error which may lead to severe consequences.

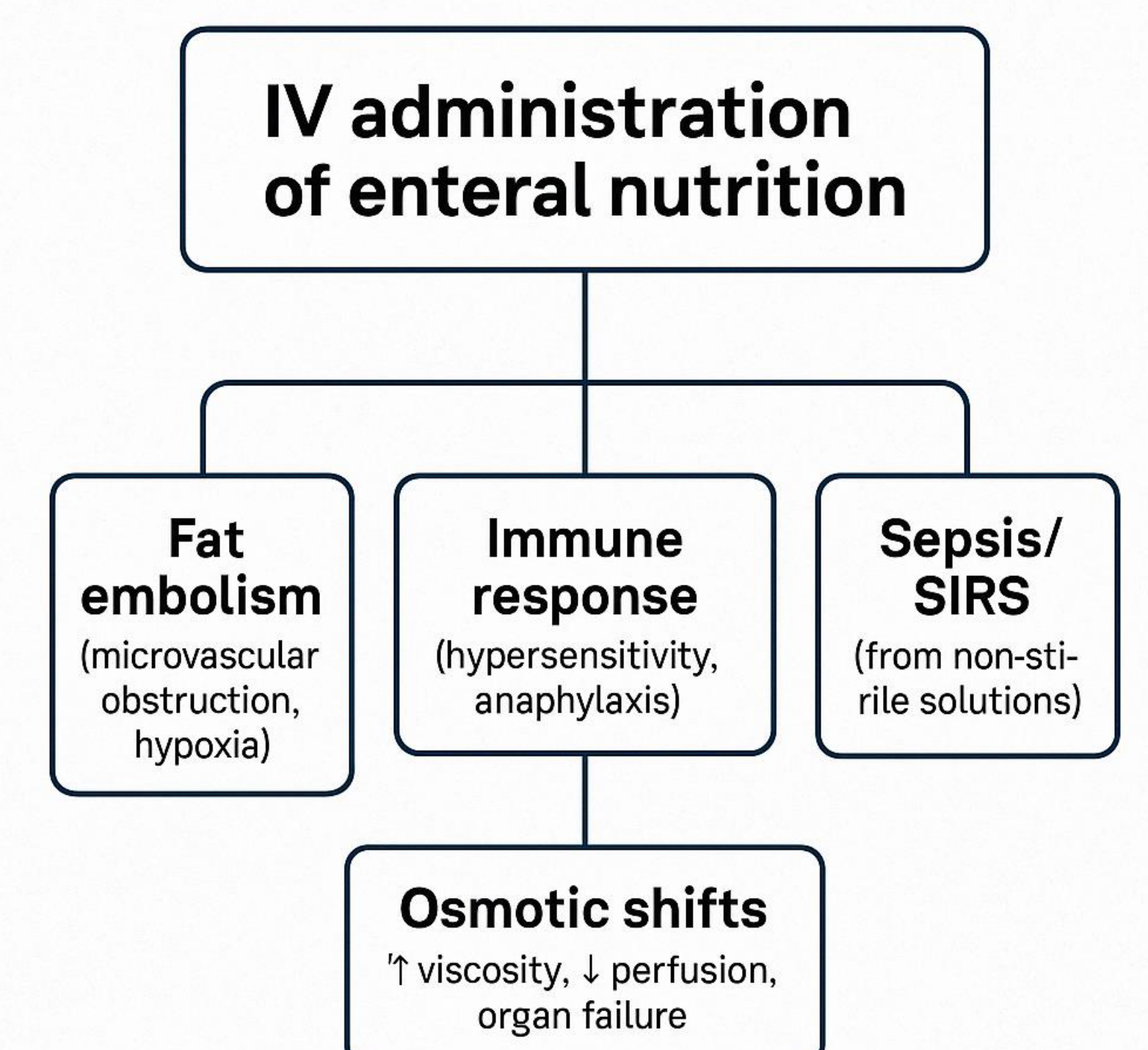


Fig. 3 - Complications of inadvertent intravenous administration of enteral nutrition

In this case, the dog received a formulation with reduced lipid content and hydrolyzed proteins, which may have mitigated the risk of lipid embolism, excessive inflammatory responses, and vascular complications compared to standard enteral feeds.

Using safety connectors like ENFit™, incompatible with luer lock connectors may prevent such wrong-route errors.

Conclusion

Catheter misconnections are rarely reported in veterinary medicine. We describe the clinical consequences, medical management, and outcome after inadvertent intravenous food administration to a dog. The low-fat content and hydrolyzed proteins of the administered food may have reduced the likelihood of fat embolism, infection, and hypersensitivity reactions.