Supplementary Table 1. Meta Analysis of All the Reported Cases of Superwarfarin Poisoning

| **Author** | **Age/gender** | **Presenting complaint/rodenticide used (if known)** | **Past medical history** | **Medications** | **Physical findings** | **Significant laboratory findings** | **Imaging findings** | **Treatment plan** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Our study | 68/M | Epistaxis/melena/cola-colored urine - 5 days duration | HTN + DM | Baby aspirin, metformin, azithromycin | Gross right nostril bleeding, clear lungs | Hct, factor 7 and 9 low PT, PTT, INR, high brodifacoum + |  | FFP and 10 mg vitamin K for 5 days. Discharged on 50 mg Vit K daily with slow taper over next 5 months. INR monitored. |
| Gunja et al, 2011w1 | 29/M | Epistaxis of 1-day duration with ingestion of rodenticide 5 days prior to presentation. (Talon Rat & Mouse Killer’® pellets containing a total of 7.5 mg brodifacoum.) |  |  | Unremarkable | Microscopic hematuria + INR 7.1 |  | 10 mg IV vitamin K on presentation then switched to oral vitamin K with incremental doses up to 100 mg daily for worsening INR. Improved in INR noted with downtrending brodifacoum levels. |
| Gunja et al, 2011w1 | 53/F |  | Schizoaffective disorder | Nortriptyline 50 mg, olanzapine 10 mg |  | INR - 5.8 (2 days after ingestion ) |  | Started on oral vitamin K at 20 mg daily with gradual increase in dose to 100 mg for worsening INR. Stabilization INR with vitamin K continuation for 3 months until brodifacoum levels were below 10. |
| Binks et al, 2007w2 | 57/M | A 2-day history of bilateral loin pain and frank hematuria. Nine days earlier, he had accidentally spill of approximately 250 mL of concentrated liquid rat poison over his torso and arms. |  |  | Mild periumbilical tenderness | PT > 200 s + aPTT of 56 s with normal fibrinogen. Urine dipstick analysis showed blood 4+ |  | Four units of FFP and 20 mg IV vitamin K initially with rapid correction of coagulation profile only to worsen in 2 days needing more IV vitamin K administration. Readmission for hematuria managed with vitamin K 20 to 30 mg PO with INR monitoring every alternate day for one more month. |
| Olmos et al, 2007w3 | 46/F | Gastric hemorrhage with severe coagulopathy. Rodenticide consumption over 2 days prior to presentation. |  |  |  | PT and aPTT prolonged | Chest X-ray showed massive pulmonary hemorrhage. | Mechanical ventilation, FFP and IV vitamin K used for initial management. Switched to oral vitamin K in following months with gradual decline in brodifacoum levels and improvement in coagulation profile. |
| Spahr et al, 2007w4 | 22/M | Flank pain and hematuria for 5 days - initially misdiagnosed as UTI - sent home - 48 h later - epistaxis, coffee-ground emesis, gross hematuria, and renewed onset abdominal and flank pain. Ingested six boxes D-CON Mouseproof. |  | None | Unremarkable | Hct 28%, PT and aPTT prolonged. Factor 2, 7, 9, 10 and 5 low | CT of abdomen - large retroperitoneal hematoma | FFP, PRBC, oral vitamin K 200 mg BID and subcutaneous 10 mg BID used for initial management. Oral vitamin K tapered for next 4 months. |
| Saphr et al, 2007w4 | 48/M | A 2-week history of left-sided flank pain, easy bruising and increased bleeding from cuts. | Renal stones, left leg amputation following a burn injury. |  |  | PT -73.8 s, INR - 9.0, PTT > 150 s. Initial brodifacoum level was 42 ng/mL. |  | Initially managed with vitamin K 10 mg IV and FFP. Needed large doses of oral vitamin K (70 mg twice daily) for several weeks. Repeat brodifacoum level was obtained after 16 days showing level of 20 ng/mL. Vitamin K discontinued once PT was noted to be 26.5 on the same day. |
| Travis et al, 1993w5 | 36 months/F | Excessive bruising for 1 week and l-day history of epistaxis and bleeding from mouth. Exposure at home to rat poison - d-CON Mouse Prufe II. | PICA |  | Active bleeding from nose and mouth + pale mucous membranes. Multiple bruises over her entire body + voided urine grossly bloody | Hb - 9.6 g/dL, hematocrit 29.9%, platelet 474 × 109/L, PT > 40 s, PTT > 120 s. Decreased levels of factors II, VII, IX and X, with normal levels of V and VIII. Initial brodifacoum level - 98 ng/mL. |  | Initially managed with vitamin K. Readmission due to non-compliance managed with IM vitamin K with brodifacoum level at discharge noted to be 27 ng/mL. To fasten recovery phenobarbital started on day 30. The PT decreased progressively. Phenobarbital therapy discontinued on day 102. Oral vitamin K was continued (brodifacoum was still detectable in the serum). Two weeks later, the PT and PTT remained normal. The family moved, and the child was lost to follow-up. Brodifacoum - undetectable - days 1l6 and 151. |
| Card et al, 2014w6 | 45/F | Suprapubic pain and discomfort of 2 days duration associated with a 1-day history of frank hematuria. | Psychiatric illness + pica | Quetiapine, fluoxetine | Mild tenderness in suprapubic region and frank hematuria | PT > 200 s, INR > 10. aPPT of 114 s. A 50:50 mix was performed and showed normalization of clotting factors (aPTT = 26.3 s and PT = 13 s). FVIII = 159%, FIX = 3%, FVII ≤ 5%, Factor II ≤ 5%, FX ≤ 5%, FV = 132% and fibrinogen = 4.65 g/L. Difenacoum was detected in the patient’s plasma in a sample taken 1 day post-exposure | KUB X-ray and ultrasound scan of the bladder and pelvis - normal. | Initially treated with phytomenadione, red cell suspension and octaplex. She was discharged on 30 mg phytomenadione daily but monitoring of vitamin K markers indicated that compliance was poor, and 152 days post-admission she presented with hemoptysis managed with intravenous phytomenadione (10 mg). |
| Yan et al, 2013w7 | 21/F G2P0 | A 1-week history of gross hematuria. Fetal movement was normal. Irregular prenatal visits. Accidentally ingested the rat poison 4 days before the onset of hematuria because of the close proximity of the poison to her food pantry |  |  |  | High PT + aPTT. Fibrinogen, D-dimer, and fibrin degradation product (FDP) - normal. Factor 2, 7, 9, 10 low. Normal 5, 8, 11. High brodifacoum in the patient’s blood (1,310 ng/mL), in the umbilical cord blood (652 ng/mL), amniotic fluid (328 ng/mL), and placenta (1,033 ng/mL). | Obstetric ultrasound revealed a live fetus with evidence of intracranial hemorrhage. | Initially managed with PCC + FFP + IM vitamin K. FHR lost - stillborn. Autopsy severe hemorrhagic changes in the brain and lungs and severe autolysis of multiple organs. The patient was followed up for more than 8 months and brodifacoum levels in the blood were measured. Patient was treated with vitamin K for several months owing to the long half-life of brodifacoum, and recovered fully. |
| Rutovic et al, 2013w8 | 40/M | Severe pain in the neck, occipital headache, followed by vomiting and numbness in his left arm. Fifteen days before admission he had hematuria, and was given antibiotics for a presumed urinary tract infection. Twenty days prior to admission he attempted suicide by ingesting an unknown quantity of rat poison -chlorophacinone poisoning |  |  | Neurological examination revealed neck stiffness without focal neurological deficit. | Hb 118 g/L, Hct - 32.2%, hematuria (urine analysis showed mass of red blood cells in sediment), prolonged PT (0 %) and aPTT (127 s). | Brain CT - left cerebellar hematoma with perifocal edema, penetrating to infratentorial subarachnoid space and a diffuse brain edema surrounding the fourth ventricle. Later CT - complete resorption of hematoma. | Initially managed with 10 % mannitol + 8 mg of dexamethasone + 6 FFP + 20 mg of vitamin K1 + 2 units of packed red blood cells. Neurological worsening needed osteoplastic craniotomy and evacuation of intracerebellar hematoma. The patient was later intubated and artificially ventilated managed with 60 mg of vitamin K1, 2 units of PRBC, 2 units of FFP, and 5 units of platelets. After the third day of treatment coagulation normalized. He continued receiving vitamin K1 for another 5 days in the average dose of 40 mg/day. After the 12th day of treatment, his condition improved; he was extubated and breathing spontaneously and sufficiently. |
| Booth et al, 2016w9 | 21/M | Chest pain. Inhaled, ingested and snorted rat poison a few hours prior to presentation. | Schizophrenia and anxiety disorder |  |  | Chemistry and hematology labs - WNL | CT - small mediastinal hemorrhage, INR - high | Initially managed with IV vitamin K and FFP. Chest tube was inserted to drain 1,500 mL hemorrhagic left pleural effusion. These timely interventions helped to bring the INR down to 2.6. Persistent pleural effusions for 22 days while in the ICU required 30 units of FFP during a 4-day period to stabilize his coagulation factors along 20 mg of IV vitamin K1 and 50 mg of oral vitamin K1 daily. His INR values normalized to 1.3 at hospital day 22, after which his chest tube was removed. Day 28, he was transferred to the psychiatric unit, his IV vitamin K was discontinued, and continued to receive 50 mg of oral vitamin K for the rest of his 39-day hospital stay. Qualitative HPLC results on hospital days 3 and 26 verified the presence of brodifacoum, confirming the long half-life of this compound. |
| Reimer et al, 2017w10 | 60/M | Gross hematuria and abdominal pain of 5 days duration. Intentionally ingested an entire box of d-CON rat poison | Chronic abdominal pain due to repair of an abdominal gunshot wound sustained approximately 10 years prior, bipolar, seizure and anxiety disorders - multiple recent hospitalizations for treatment of *Clostridium difficile* colitis | Depakote ER, Keppra, Seroquel, Xanax and Oxycodone | Afebrile, no acute distress but had a withdrawn affect. Physical exam: soft, non-distended and mildly tender in the midline on palpation. No rebound tenderness, guarding or masses were noted on abdominal exam. Mucous membranes were moist without lesions or bleeding. His skin was intact without bleeding, bruising or petechiae. | Hb 12.6 g/dL, Hct 36.9%, aspartate aminotransferase 17 U/L, alanine aminotransferase 11 U/L, PT > 100 s. INR > 14.5. Urinalysis revealed > 180 RBC/high power field. vitamin K 284 pg/mL (200 - 3,200 pg/mL), factor II 13%, factor V 99%, factor VII 10%, factor IX 24%, factor X 21% and Coumadin not detectable. The deficiency of all vitamin K-dependent factors and a normal factor V level further supported vitamin K deficiency as opposed to an acquired factor deficiency or liver disease. Additionally, the anticoagulant poisoning panel was positive for brodifacoum. | CT - no acute bleeding | Ten units of IV vitamin K in addition to 10 mg of oral vitamin K - CT - ICU - poor PT and INR response to the vitamin K, 2 units FFP. PT and INR - trending downward and treatment with oral vitamin K was continued. During his prolonged hospital course, his INR remained elevated, ranging between 3 and 6, requiring daily dosing of vitamin K or FFP as directed by our hematology service. |
| Hollinger et al, 1993w11 | 38/M | Bilateral flank pain and gross hematuria. Two to three weeks of bruising of the arms and legs, lethargy, malaise, and anorexia with a 4.5-kg weight loss. Five days later gingival bleeding and persistent hematuria. Use of the brodifacoum- containing rodenticide Talon-G at the patient's workplace. |  |  | Dried blood on the lips and gingival mucosa. There was no hepatosplenomegaly. Costovertebral angle tenderness was noted bilaterally. Several ecchymoses were noted on the extremities. Bright red blood was draining from a urinary catheter. Stool was brown and positive for occult blood. | Cystoscopy revealed blood draining from both ureters. PT > 60 s, PTT, 90.4 s and thrombin clotting time, 10.5 s. Urinalysis revealed > 100 RBCs per high power field. Factor II, 7%; factor V, 171%; factor VII, less than 1%; factor VIII, 253%; factor IX, 4%; and factor X, 2%. | A filling defect in the right renal pelvis was discovered by retrograde urography and confirmed by computed tomography | Initially managed with FFP + vitamin K administered orally, subcutaneously, and later intravenously + 2 U of packed red blood cells. Hematuria resolved 10 days after presentation. Subsequently, there was no further bruising bleeding. Phytonadione was increased to 45 mg/day by combined routes, and 14 days after presentation the PT decreased to 1.5 times the control level. 21 days after presentation he was discharged receiving 50 mg/day of oral phytonadione. A maculopapular erythematous rash appeared in a distribution overlying previous subcutaneous phytonadione injection sites at 6 weeks after presentation. This rash resolved with antihistamines and topical steroids, without discontinuation of oral phytonadione. When the PT normalized, the phytonadione dosage was tapered and then finally discontinued 114 days after presentation. Subsequent PTs remained normal. |
| Butchery et al, 1992w12 | 34/M | A 4-day history of frank, painless hematuria and bleeding from gums and skin. One sachet per day of “Ratak” - 1 month. |  | Dothiepin for 2 months | Self inflicted scars on wrist | PT > 90 s (control = 16 s), PTT > 150 s, thrombin time 16 s, fibrinogen concentration 6.2 g/L (n = 1.5 - 4.0 g/L) and fibrinogen degradation products 80 ~g mL-I (n = < 40 ~ mL-I). |  | Initially managed with vitamin K, 10 mg IV for 13 days. Hematuria resolved by day 9. The patient improved clinically, and continued follow-up with all hematological indices returning to normal, the prothrombin time finally returning to normal after 10 weeks. |

CT: computed tomography; Hb: hemoglobin; Hct: hematocrit; HTN: hypertension; DM: diabetes mellitus; PT: prothrombin time; aPTT: activated partial thromboplastin time; INR: international normalized ratio; IV: intravenous; UTI: urinary tract infection; FFP: fresh frozen plasma; PRBC packed red blood cell; BID: twice a day; PICA: posterior intercostal artery; KUB: kidney ureter bladder; WNL: within normal limits.

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