CH-09 Gut, liver and kidney: ulcers, reflux, gallstones, stones and the chronic belly

HEALING after the FALL, research library, CH-09

Researched 10 October 2026 by Claude Opus agent for THRIVING after the FALL, Book Four. Library document, unverified.

How to read this

This report covers the slow diseases of the belly. WO-08 holds the acute abdomen: the perforated ulcer, the Taylor method of suction without operation, the 12-hour rule for deciding to operate, the nasogastric tube and laparotomy by non-physicians (THRIVING library, WO-08). ME-08 holds the chemistry of bicarbonate, chalk, clay and charcoal (THRIVING library, ME-08). PH-02 holds mastic and liquorice as remedies, with doses and lookalikes, and PH-08 holds liquorice poisoning (THRIVING library, PH-02, PH-08). ME-14 holds silibinin for death cap poisoning, and TR-15 holds the herbal liver and kidney poisons, Aristolochia among them (THRIVING library, ME-14, TR-15). IN-15 holds viral hepatitis, IN-05 holds antibiotic choice and the degraded tetracycline story, and ME-09 holds the pharmacy salvage list (THRIVING library, IN-15, IN-05, ME-09). CH-02 holds the danger of potassium salt substitutes in kidney failure (THRIVING library, CH-02). None is repeated here. One gap matters: neither WO-08 nor this medical report covers operations for a bleeding ulcer or the gallbladder.

Three voices are kept apart. The tradition says what healers did and claimed. The record says what was counted. The inference is what I conclude where the record is silent. My own arithmetic and extrapolation carry [VERIFY]. Village rules the owner must decide carry [OWNER].

1. Findings by section

1.1 The ulcer before Helicobacter: milk, alkali and bed

Tradition and record. For most of the twentieth century peptic ulcer was treated as a disease of acid and nerves. Bertram Sippy of Chicago developed his regimen in 1910 and published it in 1915. The patient stayed in bed for about four weeks and took 90 mL of milk and cream every hour. Between feeds came powders of 0.65 to 2.00 g of alkali (magnesium oxide, sodium bicarbonate or bismuth subcarbonate), and some patients took up to 6.5 g of bicarbonate an hour. Solid food was added slowly over weeks (Sippy 1915, as reported by Medarov 2009).

Record of harm. The regimen produced a new disease. Hardt and Rivers at the Mayo Clinic described toxic alkalosis in Sippy patients in 1923, and Burnett named the milk-alkali syndrome in 1949 in six men, four of whom died. Alkalosis appeared in 2 to 18 per cent of Sippy-treated patients, with an early mortality of 4.4 per cent (Medarov 2009). The syndrome has three parts: high blood calcium, alkalosis and kidney failure. It returned in the 1990s with calcium carbonate taken for bones and heartburn (Beall and others 2006). Calcium carbonate at 4 to 5 g a day or more is excessive. Up to 2 g of elemental calcium a day is considered safe. Symptoms usually resolve within 24 to 48 hours of stopping, but kidney damage can remain (Medarov 2009).

What this means for chalk. Powdered chalk or eggshell is calcium carbonate, the antacid a village is most likely to make. ME-08 sets the bicarbonate limits and grades it X for daily or ulcer use, and I agree (THRIVING library, ME-08). I add a ceiling for chalk taken with milk: no more than about 4 g of calcium carbonate a day, and none in a person with kidney failure [VERIFY, my inference from Medarov 2009].

The natural course. The untreated duodenal ulcer heals and relapses for decades. In the control arm of Graham's trial (ulcer healed, Helicobacter not treated) 95 per cent of duodenal ulcers and 74 per cent of gastric ulcers came back within two years. Half of those on ranitidine alone relapsed within 12 weeks (Graham and others 1992). Most will suffer for years, and a few will bleed or perforate.

Complications. A systematic review of 93 studies found ulcer bleeding in 19.4 to 57.0 people per 100,000 a year and perforation in 3.8 to 14 per 100,000. After bleeding, 13.9 per cent bled again within seven days. Thirty-day mortality was 8.6 per cent after bleeding and 23.5 per cent after perforation. Risk factors were NSAIDs and aspirin, Helicobacter, an ulcer of 1 cm or more, age, shock and delay (Lau and others 2011). Those are figures from the era of endoscopy and blood banks. Before endoscopy, a 1950 review from Aberdeen put bleeding mortality at 13.9 per cent (secondary source, [VERIFY]). Avery Jones's series of the 1950s is the classic record, but I could not find or read it [VERIFY].

Inference. For a district of 3,000, the pre-Fall rates give 0.6 to 1.7 bleeding ulcers and 0.1 to 0.4 perforations a year [VERIFY, my arithmetic]. After the Fall there will be fewer NSAIDs to cause ulcers but more Helicobacter, because no one will be treating it. Willow bark and other salicylate remedies also cause ulcers [VERIFY].

1.2 Helicobacter and eradication with salvaged stock

History. Robin Warren saw curved bacilli on gastric biopsies in Perth from 1979, and Barry Marshall cultured them. In 100 consecutive endoscopy patients, spiral bacilli were present in 58 and cultured from 11. They were present in almost all patients with active chronic gastritis, duodenal ulcer or gastric ulcer (Marshall and Warren 1984). Marshall then drank a culture himself. The paper was written in the third person, as a volunteer with normal mucosa. He had a mild illness lasting 14 days, with gastritis on biopsy at day 10 that had largely resolved by day 14 (Marshall and others 1985).

Record of cure. The Cochrane review pools the trials. About 95 per cent of duodenal and 70 per cent of gastric ulcers are associated with Helicobacter. Against no treatment, eradication left duodenal ulcers unhealed in 21.7 per cent against 58.5 per cent (2 trials, 207 patients, RR 0.37). Against no treatment, duodenal ulcers recurred in 12.9 per cent against 64.4 per cent (27 trials, 2,509 patients, RR 0.20). Gastric ulcers recurred in 16.3 per cent against 52.4 per cent (12 trials, 1,476 patients, RR 0.31). For healing gastric ulcers, eradication added nothing measurable to an acid drug (RR 1.23, not significant). The authors graded much of the evidence low or very low (Ford and others 2016). By my arithmetic, about two people must be treated to prevent one duodenal relapse [VERIFY].

The PPI-free regimen. The early record says a village can eradicate Helicobacter without a proton pump inhibitor (PPI), if bismuth is in stock. Graham's 1992 trial treated 109 patients with tetracycline 2 g a day, metronidazole 750 mg a day and bismuth subsalicylate tablets, each holding 151 mg of bismuth, for two weeks, plus ranitidine. Recurrence fell to 12 per cent in duodenal ulcer (against 95 per cent) and 13 per cent in gastric ulcer (against 74 per cent). The failures were failed eradications and NSAID users (Graham and others 1992). A meta-analysis of 27 studies from the same years found eradication rates of 18.6 per cent with one drug, 48.2 per cent with two and 82.3 per cent with three. Bismuth, metronidazole and tetracycline reached 94.1 per cent. Bismuth with metronidazole and amoxicillin reached 73.1 per cent (Chiba and others 1992).

The modern regimen. The 2024 American guideline prefers 14 days of bismuth quadruple therapy: a PPI twice daily, tetracycline 500 mg four times daily, metronidazole 500 mg three or four times daily and bismuth four times daily. It uses clarithromycin or levofloxacin only when the strain is known to be susceptible, and it tests for cure at least four weeks later (Chey and others 2024). The European consensus agrees on bismuth quadruple therapy

where clarithromycin resistance is high (Malfertheiner and others 2022, abstract only). The two sources differ on metronidazole: Graham used 750 mg a day, the guideline 1,500 to 2,000 mg a day. Both used 14 days.

Resistance. Metronidazole resistance rose quickly once the drug was used alone. In Marshall's Perth series, 17 per cent of first isolates resisted tinidazole and 70 per cent became resistant on cimetidine plus tinidazole. Bismuth helped prevent it (secondary account of a 1988 Perth study, not read [VERIFY]). A single-drug course is worse than none.

Harms of bismuth. Bismuth turns the stool and tongue black. Black stool is also the sign of a bleeding ulcer, so check pulse, pallor, faintness and consistency (tarry and sticky in bleeding [VERIFY]). Long use of bismuth salts has caused encephalopathy, and bismuth subsalicylate carries salicylate, with the risk of salicylism (Bradley and others 1989). The two-week course is short. Daily household use for months is the danger [VERIFY, inference].

Harms of the antibiotics. Degraded tetracycline once damaged kidney tubules (the Fanconi syndrome), and IN-05 sets the rule: destroy plain tetracycline that is brown, sticky, or was ever hot or damp (THRIVING library, IN-05). Tetracyclines are avoided in pregnancy and under eight years, and metronidazole is given with a ban on alcohol [VERIFY].

Feasibility after the Fall. No village can test for Helicobacter, so treatment would be empirical, for a typical relapsing history: upper belly pain, worse when hungry or at night, relieved by food or alkali, over years. Each course costs about 56 tablets of tetracycline 500 mg and 42 to 56 tablets of metronidazole 500 mg at the guideline dose [VERIFY, my arithmetic]. The same drugs treat cholera, typhus and abscesses (THRIVING library, IN-05), so spending them on ulcers is a stewardship decision [OWNER]. My recommendation is to give the full bismuth course to people who have already bled or perforated, and to anyone whose ulcer disables them for months, and to nobody else [VERIFY, inference].

1.3 Cabbage, mastic and liquorice

Cabbage (Brassica oleracea var. capitata, raw leaf juice). *Tradition.* Raw cabbage is old European folk medicine for the stomach. Garnett Cheney of Stanford gave about a litre of fresh juice a day and claimed it contained an anti-ulcer factor he called "vitamin U" (secondary sources [VERIFY]). *Record.* In 13 patients the craters healed in a mean of 10.4 days for duodenal ulcer and 7.3 days for gastric ulcer, judged by X-ray and gastroscopy. The comparison was with 62 patients from the literature, who took 37 and 42 days (Cheney 1949, abstract only). There were no concurrent controls. A later double-blind trial in San Quentin prison compared concentrated juice with placebo over 22 days and called the juice "effective", but the abstract gives no figures. A secondary source cites 92 per cent [VERIFY] (Cheney and others 1956, abstract only). Doll and Pygott ran a trial of cabbage juice in gastric ulcer in London in 1954. I could not find its result (Doll and Pygott 1954, citation only). Vitamin U may be S-methylmethionine, which is not settled [VERIFY]. *Grade.* D. Harmless and cheap, it may be offered alongside proper care, never instead of it. A cultivated head cabbage has no dangerous lookalike.

Mastic (Pistacia lentiscus var. chia, resin). PH-02 grades mastic B for dyspepsia and duodenal ulcer, gives 0.5 to 1 g twice daily for at most two weeks, and names terebinth resin as the lookalike (THRIVING library, PH-02). Behind that grade is one small old trial. In 38 patients with duodenal ulcer, 1 g a day for two weeks relieved symptoms in 80 against 50 per cent and healed 14 of 20 (70 per cent) against 4 of 18 (22 per cent) on endoscopy, with no side effects (Al-Habbal and others 1984). A 1998 letter reported that mastic killed Helicobacter in the laboratory (Huwez and others 1998). PH-02 reports the human trials that followed: mastic alone cleared Helicobacter in 4 or 5 of 13 patients, against 10 of 13 on triple therapy (THRIVING library, PH-02). I agree with PH-02. Mastic eases symptoms but does not cure Helicobacter, and it is scarce outside the Mediterranean.

Liquorice (Glycyrrhiza glabra, root) and carbenoxolone. *Tradition.* Liquorice has been a stomach remedy in Greek, Arabic and Chinese medicine for centuries (THRIVING library, PH-02). *Record.* Carbenoxolone, a derivative of glycyrrhetinic acid, was the first drug shown to heal gastric ulcers in controlled trials in the 1960s, first by Doll and colleagues in 1962 (secondary sources, trial not read [VERIFY]). The later trials show both effect and harm. In

57 patients, carbenoxolone 100 mg three times daily healed more ulcers than the comparison drug, though not significantly, and nearly half developed low potassium or oedema (Smith and others 1975). In 40 patients, endoscopic improvement beat placebo, and serum potassium fell 7 per cent (Schwamberger and Reissigl 1980). Oedema followed higher blood levels, older age and a falling potassium (Baron and others 1978). Deglycyrrhizinated liquorice (DGL) was made to keep the benefit without the harm. It failed: a crossover trial of 760 mg three times daily in 38 patients found no healing effect (Engqvist and others 1973), and a trial in 96 patients found no difference at four weeks (Bardhan and others 1978). *Inference.* Healing and harm come from the same molecule, and whole root is a weak carbenoxolone. The PH-02 and PH-08 limits apply: 3 to 8 g of root a day for at most four weeks, and under 2.5 g a day for long use. PH-08 reports that over 80 per cent of people over 60 developed signs on 6 g a day for more than 30 days (THRIVING library, PH-02, PH-08). A review of 104 case reports adds arrhythmia, paralysis and muscle breakdown (Ceccuzzi and others 2023). I would not use liquorice for ulcer in anyone over 60, with high blood pressure, swelling or heart failure, or on diuretics [VERIFY, inference]. Its lookalike, the toxic seed of Abrus precatorius, is listed in PH-02.

1.4 Bleeding and perforation: the turn to surgery

Perforation. WO-08 covers the perforated ulcer in full. It covers the record from Mikulicz and Heusner to the Taylor method. It reports Crofts's trial, in which only 11 of 40 patients managed without operation needed surgery by 12 hours, and mortality was 5 per cent in each arm. It sets the decision rules and the 12-hour clock (THRIVING library, WO-08). I do not repeat them. One point belongs here. A perforation that has sealed under suction is still an ulcer and will relapse. The bismuth course in section 1.2 is the best use of salvaged antibiotics after a sealed perforation [VERIFY, inference].

Bleeding. The signs are vomited blood or "coffee grounds", and black, tarry, foul stool (melaena). Then come fainting, a fast pulse, pallor and thirst. Most bleeds stop by themselves, though I found no reliable pre-endoscopy figure [VERIFY]. Two modern trials change village practice.

- **Transfuse less.** In 921 patients, transfusing only below a haemoglobin of 7 g/dL, compared with below 9, gave better six-week survival (95 against 91 per cent, hazard ratio 0.55) and less rebleeding (10 against 16 per cent). Patients with massive bleeding were excluded (Villanueva and others 2013). Without a laboratory, the inference is to transfuse for shock and collapse, not for paleness alone [VERIFY].
- **No tranexamic acid.** In 12,009 patients with gastrointestinal bleeding, tranexamic acid (1 g, then 3 g over 24 hours) did not reduce deaths from bleeding (3.7 against 3.8 per cent) and increased venous clots (Roberts and others 2021). Salvaged tranexamic acid belongs to childbirth and trauma, not to the bleeding ulcer.

Village care is in Protocol 3. Whether a district surgeon will open a bleeding duodenum is a question for the surgical reports.

1.5 Reflux and dyspepsia

A review of 16 trials found that weight loss and raising the head of the bed improved reflux (evidence grade B in the review's terms), and that lying on the left side helped. It found no trial support for stopping tobacco or alcohol, or for cutting chocolate, coffee, spicy food or citrus, though a single person may still find a trigger food (Kaltenbach and others 2006). A later review of head-of-bed elevation found five small trials with 228 patients. All were at high risk of bias, and four showed symptom relief (Albarqouni and others 2021). The bed is raised on blocks under the legs at the head end. Extra pillows bend the body at the waist instead [VERIFY].

The danger lies in what reflux hides: cancer of the stomach or oesophagus, and heart pain called indigestion (section 5).

1.6 Gallstones

Natural history. Most gallstones never cause trouble. Of 123 people with silent stones, 15 per cent had symptoms by 10 years and 18 per cent by 15 years (Gracie and Ransohoff 1982, figures from a secondary source). A review put serious symptoms or complications at 1 to 2 per cent a year for silent stones and 1 to 3 per cent a year after mild symptoms. Acute cholecystitis was the commonest severe complication (Friedman 1993). In 691 members of an American health plan followed about five years, only 2 of 50 deaths were from the gallbladder (McSherry and others 1985).

Acute cholecystitis without surgery. A review of 24 studies and 1,841 patients found that conservative treatment, meaning rest, fluids, pain relief and usually antibiotics, settled 87 per cent of attacks overall and 96 per cent of mild ones. Pooled mortality was 0.5 per cent, and 20 to 22 per cent had a further attack (Loozen and others 2017). A Norwegian trial randomised 64 patients with acute cholecystitis to observation or operation and followed them for 14 years. Of the 33 observed, a third had a new gallstone event (24 per cent another cholecystitis) and a third were eventually operated on. Long-term mortality was the same, and almost no one needed surgery after five years (Schmidt and others 2011a). A companion trial of 137 patients with uncomplicated painful stones found no difference in outcomes, though half the observed group was eventually operated on (Schmidt and others 2011b). *Inference.* A village that cannot remove gallbladders can still manage most gallbladder disease. The patients it will lose are those with pus in the gallbladder, perforation, infected bile ducts (cholangitis) and gallstone pancreatitis [VERIFY].

Dissolution: bear bile and ursodeoxycholic acid. *Tradition.* Bear bile entered the Chinese materia medica at the latest by the Tang Ben Cao of 659 CE (secondary source [VERIFY]). Bile from dogs, oxen and carp was used earlier. Farming of live bears for bile began in the 1980s (Feng and others 2009). *Pharmacology.* Bears are the only mammals making large amounts of ursodeoxycholic acid (UDCA), the active molecule (Feng and others 2009). Ox bile is mostly other bile acids [VERIFY]. *Record.* Oral UDCA dissolved stones in about half of selected patients within two years. Selection meant small, non-calcified (radiolucent) stones under 15 to 20 mm in a gallbladder that still works. Half of the dissolved stones recurred within five years (Schoenfield and Marks 1993). *Inference.* Without imaging a village cannot select patients. Bear bile adds cruelty and unknown dose. I grade UDCA B and bear bile D, and recommend neither for routine use [VERIFY].

Surgery. Carl Langenbuch removed the first gallbladder at the Lazarus Hospital in Berlin in July 1882. Before that, surgeons had opened the gallbladder and removed the stones (cholecystostomy). Bobbs did so in 1867 and Sims and Kocher in 1878. Stones were also taken out through fistulas that had opened to the skin by themselves (Hardy 1993). Cholecystostomy is the operation a district surgeon is most likely to manage, and WO-08 does not cover it [VERIFY, inference].

Diet. The tradition everywhere is to avoid fat, and attacks often follow a fatty meal. I found no trial of a low-fat diet for preventing attacks [VERIFY].

1.7 Kidney stones: colic and passage

Passage by size. Most ureteric stones pass by themselves. The European guideline gives passage for almost 75 per cent of stones under 5 mm and 62 per cent of stones of 5 mm or more, taking about 17 days on average (EAU 2025). In 172 patients measured on CT, passage fell from 87 per cent at 1 mm to 60 per cent at 5 to 7 mm and 25 per cent above 9 mm. Stones near the bladder passed more often than stones near the kidney (79 against 48 per cent) (Coll and others 2002). In 75 patients, the mean time to pass was 8 days for stones of 2 mm or less, 12 days for 2 to 4 mm and 22 days for over 4 mm. Ninety-five per cent had passed by 31, 40 and 39 days respectively (Miller and Kane 1999). *Inference.* Without imaging no one knows the size. A useful rule is that pain lasting more than about six weeks means the stone is unlikely to pass [VERIFY].

Pain. The European guideline makes an NSAID first choice (strong recommendation), names diclofenac at 100 to 150 mg a day for 3 to 10 days, puts opioids second and advises against pethidine (EAU 2025). The largest trial

gave 1,645 patients diclofenac 75 mg by injection, morphine 0.1 mg/kg or paracetamol 1 g, both intravenous. At 30 minutes pain had at least halved in about 68, 66 and 61 per cent respectively. Adverse events were 3 per cent on morphine and 1 per cent on each of the others (Pathan and others 2016). The Cochrane review of 20 trials found that NSAIDs needed less rescue medicine than opioids (RR 0.75) and caused much less vomiting (RR 0.35), the opioid being mostly pethidine (Holdgate and Pollock 2005). The sources agree on the drug and differ on route and dose. NSAIDs are dangerous in kidney failure, dehydration, a single kidney, active ulcer and late pregnancy [VERIFY].

Helping the stone out. Alpha-blockers such as tamsulosin were standard. The Cochrane review of 67 studies found a pooled benefit (RR 1.45), but only RR 1.16 in the high-quality placebo trials, and RR 1.06 for stones of 5 mm or less (Campschroer and others 2018). The British SUSPEND trial gave 1,167 patients tamsulosin 400 µg, nifedipine 30 mg or placebo and found no difference (Pickard and others 2015). The European guideline still offers alpha-blockers for distal stones of 5 to 10 mm (EAU 2025). *Inference.* Salvaged tamsulosin is worth keeping only for larger stones near the bladder [VERIFY].

Chanca piedra (Phyllanthus niruri, whole aerial plant). *Tradition.* In Peru the plant is called chanca piedra and in Brazil quebra-pedra, both meaning "stone breaker". It is drunk as a tea for stones, and in Ayurveda the related bhumyamalaki is used for jaundice. True P. niruri is native to the West Indies and tropical America. Indian material sold under the name is often P. amarus, P. fraternus or P. debilis (Boim and others 2010). The small leaflets on a slender stem resemble other weedy Phyllanthus species, which are its usual substitutes. They are also loosely like small prostrate spurges (Euphorbia), which have milky sap and should be rejected [VERIFY, inference]. *Record.* In 69 patients given 450 mg capsules for three months, nothing changed overall except urinary calcium in those who had too much. Stone passage and pain did not differ (Nishiura and others 2004). After shock-wave treatment in 150 patients, 2 g a day for three months gave no significant difference in stone-free rates (93.5 against 83.3 per cent, p=0.48). There was a benefit only for stones in the lower part of the kidney, and the allocation was not truly random (Micali and others 2006). An uncontrolled study gave 56 patients an infusion of one 4.5 g sachet in 250 mL of boiling water twice a day for 12 weeks. Stones per patient fell from 3.2 to 2.0, but 66 per cent reported abdominal pain, 11 painful urination, 8 blood in the urine and 6 nausea (Pucci and others 2018, full text read). *Grade.* D. The advocacy runs well ahead of the record.

1.8 Stone prevention: water, calcium, salt and lemons

Water. In 199 people after a first calcium stone, those told to drink enough to pass about 2 L of urine a day had 12 recurrences in 99 over five years, against 27 in 100 left untreated (p=0.008). Recurrence came later, at 38.7 against 25.1 months. Stone formers started with about 1 L of urine a day (Borghi and others 1996). The guideline asks for 2.5 to 3.0 L of fluid a day, to make at least 2.0 to 2.5 L of urine (EAU 2025). Heat and heavy work raise the need [VERIFY].

Calcium is not the enemy. Cutting dietary calcium was the old advice. It is wrong. In 120 men with recurrent calcium stones, a diet with normal calcium (30 mmol, about 1.2 g a day) and less animal protein (52 g) and salt (50 mmol of sodium chloride, about 3 g) gave 12 relapses in 60 over five years, against 23 in 60 on a low-calcium diet (10 mmol a day). The relative risk was 0.49. Urinary oxalate rose on the low-calcium diet (Borghi and others 2002). The guideline gives calcium 1 to 1.2 g a day, salt 4 to 5 g, animal protein 0.8 to 1.0 g/kg, a normal weight, no excess oxalate and no vitamin C supplements (EAU 2025). *Inference.* In a village this means taking milk, cheese or other calcium food with the meal that contains greens, so calcium binds oxalate in the gut. It also means not eating large amounts of spinach, rhubarb, beet greens or nuts, and keeping salt down [VERIFY].

Lemons (Citrus limon, juice). Citrate in urine stops calcium crystals from growing. In 12 patients with low urinary citrate, about 120 mL of lemon juice (5.9 g of citric acid) diluted in 2 L of water a day raised urinary citrate from 142 to 346 mg a day, and 7 of 12 reached normal levels. Two had mild indigestion. Lemon juice holds nearly five times the citric acid of orange juice (Seltzer and others 1996). In a retrospective series of 11 patients on lemonade for a mean of 44 months, 10 raised their citrate, and stones fell from 1.00 to 0.13 per patient per year, not significant in so small

a group (Kang and others 2007). The guideline says only that citrus juices "seem to protect" (EAU 2025). *Grade.* B for raising citrate, C for preventing stones. Where lemons grow it is cheap. Sugar added to make it palatable is a cost in a diabetic [VERIFY].

1.9 The infected obstructed kidney and the old stone operation

The emergency. A stone that blocks a ureter in a kidney that is also infected kills. The signs are colic with high fever, shaking chills, or confusion and low blood pressure. Antibiotics alone do not drain the pus. In 1,712 patients with sepsis and ureteric stones, mortality was 19.2 per cent without decompression and 8.8 per cent with it (odds ratio 2.6) (Borofsky and others 2013). The guideline says to decompress urgently with a stent or a tube through the skin into the kidney (nephrostomy), give antibiotics, and remove the stone later (EAU 2025). *Inference.* Neither is possible in a village. The village gives the strongest available antibiotic (IN-05 lists the choices), fluids and transport. A district with ultrasound and a surgeon may be able to place a nephrostomy. Without decompression, I estimate at least one patient in five will die [VERIFY, inference from Borofsky 2013].

Lithotomy. William Cheselden introduced lateral perineal lithotomy in London in the 1720s and could finish in under a minute. He lost 4 of his first 10 patients and then changed his technique. Over his career he cut 213 patients with a mortality under 10 per cent, and in 1740 he grouped deaths by age, among the first such tables in surgery (James Lind Library 2010, Hektoen International 2020). *Inference.* Bladder stone, once common in poor children on cereal diets, is a different disease and a surgical topic [VERIFY].

1.10 Chronic kidney failure without dialysis

Without a laboratory. Kidney failure is found late, by tiredness, itching, swelling, breathlessness and nausea. Diabetes and high blood pressure are the main causes (THRIVING library, CH-01, CH-02). A village can suspect it but not stage it [VERIFY].

Survival without dialysis. A review of 13 studies found median survival with conservative care for end-stage disease of 6.3 to 23.4 months. Symptoms were heavy, but quality of life may match dialysis (O'Connor and Kumar 2012). In 844 patients over 75, median survival was 21.2 months without dialysis and 67.1 months with it. In those over 75 with heavy comorbidity, dialysis added only about four months, which was not significant (Chandna and others 2011). *Inference.* After the Fall there is no dialysis. For the elderly and frail, the record says the loss is smaller than people fear. For the young, end-stage kidney failure means death within about two years [VERIFY, inference].

Protein. The Cochrane review of 17 studies (2,996 patients) found that a very low-protein diet (0.3 to 0.4 g/kg a day) delayed end-stage disease against a low-protein diet (RR 0.65, 165 fewer per 1,000), with no difference in deaths. A low-protein diet (0.5 to 0.6 g/kg) did no better than a normal one (0.8 g/kg or more) (Hahn and others 2020). The very low-protein diets in trials were usually supplemented with keto-acid tablets [VERIFY]. *Inference.* Without supplements, a very low-protein diet risks wasting, so a moderate cut to about 0.6 to 0.8 g/kg, mostly from plants, is the safer village advice [VERIFY].

Potassium and salt. Salt substitutes made of potassium chloride can stop the heart in kidney failure (THRIVING library, CH-02). The evidence for strict restriction of potassium-rich fruit and vegetables is thin. A practice review found no trials of cutting dietary potassium to treat high potassium (MacLaughlin and others 2023, search summary). Spironolactone, used for ascites, also raises potassium. *Rule.* No potassium salt substitutes for anyone with swelling, little urine or known kidney disease [OWNER].

NSAIDs, dehydration and Aristolochia harm the kidney (THRIVING library, TR-15).

1.11 The liver: alcohol, cirrhosis, ascites, confusion and jaundice

Alcohol. Patients with alcoholic cirrhosis who stopped drinking lived longer (Powell and Klatskin 1968, figures not read [VERIFY]). Stopping is the only treatment that changes the course. A village with a still has a liver policy whether it means to or not [OWNER].

Natural course. A review of 118 studies on how cirrhosis runs is the standard source (D'Amico and others 2006). I could not read its figures. Later summaries give a median survival of 12 years or more while compensated, decompensation in 5 to 8 per cent a year, and 2 to 4 years after it (secondary summary [VERIFY]). The British guideline says 20 per cent of patients die in the first year after ascites appears (Aithal and others 2021).

Ascites. The British guideline is the source for the figures below. EASL 2018, read only in secondary summary, agrees on salt and diuretics (Aithal and others 2021, EASL 2018). - *Salt.* No more than 5 to 6.5 g a day (87 to 113 mmol of sodium). - *Fluid.* Restrict to 1 to 1.5 L a day only if blood sodium is below 125 mmol/L. - *Diuretics.* Spironolactone from 100 mg, rising to 400 mg a day. Furosemide added from 40 mg, rising to 160 mg. - *Weight loss.* No more than 0.5 kg a day without leg oedema, or 1 kg a day with it. - *Harms of diuretics.* Low sodium in 8 to 30 per cent of patients and high potassium in up to 11 per cent. - *Tapping.* Albumin is not routinely needed when under 5 L is drained. Above 5 L, give 8 g of albumin per litre removed. - *Tapping complications.* Bleeding in 0 to 2.7 per cent, leakage in 0 to 2.35 per cent and bowel puncture in 0.83 per cent. In 3,116 taps, 0.19 per cent bled enough to need transfusion and none died. - *Needle site.* At least 8 cm from the midline and 5 cm above the pubic bone. - *Infected ascites.* After spontaneous infection of the fluid (spontaneous bacterial peritonitis), one-year survival is 34 per cent. Prophylaxis is norfloxacin 400 mg, ciprofloxacin 500 mg or co-trimoxazole 800/160 mg, each once daily.

Inference. Furosemide is in the salvage stock (THRIVING library, ME-09), spironolactone may not be, and furosemide alone works poorly in cirrhosis [VERIFY]. Daily weighing replaces the laboratory. Who may tap is [OWNER].

Confusion in the cirrhotic (hepatic encephalopathy). Lactulose or lactitol against placebo or no treatment, in 38 trials with 1,828 patients, reduced deaths (RR 0.59), encephalopathy (RR 0.58) and serious liver complications (RR 0.47) (Gluud and others 2016). The 2014 American and European guideline gives lactulose syrup 25 mL every 1 to 2 hours until at least two soft stools come, then adjusts it to keep two to three bowel movements a day (Vilstrup and others 2014). The 2022 European guideline keeps the same target of two to three stools a day for prevention after a first episode (EASL 2022, search summary). The two sources agree. Look for the trigger (Protocol 9). Old advice to stop all protein is now abandoned (Vilstrup and others 2014, as I recall it [VERIFY]). *Inference.* When lactulose runs out, any purge that empties the bowel without poisoning may do part of its work [VERIFY].

Jaundice by eye. In a double-blind study, 62 examiners looked at six patients. At bilirubin 2.5 mg/dL (42.8 μmol/L), 58 per cent saw the yellow eye, and at 3.1 mg/dL 68 per cent did (Ruiz and others 1997). Look in daylight, not lamplight, at the white of the eye with the lower lid pulled down [VERIFY]. Infective hepatitis belongs to IN-15 and herbal liver injury to TR-15. Jaundice with pale stools, dark urine, itching and colicky pain suggests a gallstone in the bile duct. Painless jaundice with weight loss in an older person suggests cancer [VERIFY].

Milk thistle (Silybum marianum, ripe fruit, called seed). *Tradition.* A European liver herb since antiquity [VERIFY]. *Record.* The Cochrane review of 13 trials (915 patients) with alcoholic or viral hepatitis found no significant effect on all-cause mortality (RR 0.78, 0.53 to 1.15). Liver-related mortality looked lower in all trials (RR 0.50) but not in the high-quality ones (RR 0.57, 0.28 to 1.19). There was no effect on complications or liver tissue, and adverse events were no more common than on placebo (Rambaldi and others 2007). ME-14 grades silibinin D for death cap poisoning and warns that milk thistle is not the Amanita cure (THRIVING library, ME-14). *Lookalikes.* Other thistles (Carduus, Cirsium, Onopordum) lack the white-veined leaves [VERIFY]. *Grade.* X as a liver treatment, but harmless. The danger is the belief that a tonic replaces stopping drink.

1.12 Irritable and inflammatory bowel

Irritable bowel. A meta-analysis found fibre helped (12 trials, RR 0.87 for persisting symptoms), but only ispaghula, the husk of Plantago ovata seed, did so clearly (RR 0.78). Bran did not [VERIFY]. Antispasmodics helped (22 trials, RR 0.68, hyoscine 0.63). Peppermint oil helped most (4 trials, 392 patients, RR 0.43) (Ford and others 2008). The trials used enteric-coated capsules of oil from Mentha x piperita. Peppermint tea is untested [VERIFY]. Native plantains (Plantago major, P. lanceolata) are not the same as ispaghula [VERIFY].The label must not hide a cancer or inflammatory bowel disease (section 5).

Inflammatory bowel. Bloody diarrhoea that lasts for weeks in a young adult, with no outbreak around it, suggests ulcerative colitis or Crohn's disease. Infection must be ruled out first (THRIVING library, IN-05). Truelove and Witts tested cortisone against a dummy in ulcerative colitis from 1952, in one of the first blinded trials in medicine, and found it lowered deaths (Truelove and Witts 1955, figures from secondary sources). Later reviews say steroids cut deaths in severe colitis from about 75 per cent to under 1 per cent, though that is a comparison across eras [VERIFY]. *Inference.* Salvaged prednisolone is the district's likely drug for a severe attack.

2. Evidence grades

Practice	Use	Grade	Basis
Bismuth, tetracycline and metronidazole, 14 days	Ulcer cure	A	Chiba 1992, Graham 1992, Ford 2016
Sippy milk and alkali	Ulcer	X	Milk-alkali syndrome, Medarov 2009
Raw cabbage juice	Ulcer	D	Uncontrolled, Cheney 1949
Mastic 1 g a day, 2 weeks	Duodenal ulcer symptoms	B	Al-Habbal 1984, PH-02
Liquorice, long use or over 60	Any	X	Ceccuzzi 2023, PH-08
DGL	Ulcer	X	Engqvist 1973, Bardhan 1978
Restrictive transfusion	Bleeding ulcer	A	Villanueva 2013
Tranexamic acid	Bleeding ulcer	X	HALT-IT 2021
Weight loss, raised bed head, left side	Reflux	B	Kaltenbach 2006, Albarqouni 2021
Conservative care	Acute cholecystitis	A	Loozen 2017, Schmidt 2011
UDCA tablets	Gallstone dissolution	B	Schoenfield 1993
NSAID or paracetamol before opioid	Renal colic	A	Pathan 2016, Holdgate 2005
Tamsulosin	Small stones	X	SUSPEND 2015, Campschroer 2018
Water to 2 to 2.5 L of urine	Stone prevention	A	Borghi 1996
Normal calcium, less salt and meat	Stone prevention	A	Borghi 2002
Lemon juice 120 mL a day	Stone prevention	C	Seltzer 1996, Kang 2007
Chanca piedra	Stones	D	Nishiura 2004, Micali 2006

Practice	Use	Grade	Basis
Antibiotics without drainage	Infected obstructed kidney	B (partial)	Borofsky 2013
Conservative care, elderly and frail	End-stage kidney failure	B	Chandna 2011
Very low protein with supplements	Kidney failure	A	Hahn 2020
Salt cap and diuretics	Ascites	A	Aithal 2021
Lactulose	Encephalopathy	A	Gluud 2016
Abstinence	Alcoholic cirrhosis	B	Powell 1968
Milk thistle	Liver disease	X	Rambaldi 2007
Ispaghula, peppermint oil, hyoscine	Irritable bowel	A	Ford 2008
Corticosteroid	Severe ulcerative colitis	A	Truelove 1955

A grade for a pre-Fall drug grades the drug, not its availability.

3. Means ledger

Rung	What this chapter needs there
Hands	History taking: ulcer pain pattern, colic, fever, jaundice by daylight, swelling, confusion. Pulse and fainting for bleeding. Tenderness under the right ribs.
Hearth	Bed rest, boiled water in volume, a low-salt kitchen, measured protein for kidney failure.
Garden and still	Cabbage, lemons, mint, Plantago ovata if it grows, mastic and liquorice only by trade. Chalk as an antacid with a ceiling. A still means a liver policy [OWNER].
Village dispensary	A bathroom scale for ascites. Salvaged bismuth subsalicylate, paracetamol, ibuprofen or diclofenac, lactulose, furosemide, spironolactone if found. A locked box for tetracycline and metronidazole kept for ulcer courses [OWNER].
District infirmary	Sterile tap kit (needle, cannula, tubing, bag). Blood grouping and transfusion. Prednisolone. Ultrasound if powered. A surgeon for cholecystostomy and, in time, lithotomy.
Pre-Fall hospital	Endoscopy, PPIs, stents and nephrostomy, laparoscopic gallbladder surgery, dialysis, transplant, albumin. None will return soon.

4. Harm test

1. **Milk and alkali.** Chalk and milk at home can repeat the Sippy deaths. Cap chalk at about 4 g a day and stop at thirst, nausea, confusion or weakness (Medarov 2009).
2. **Bicarbonate.** Gas rupture of a full stomach and alkalosis (THRIVING library, ME-08).

3. **Liquorice and carbenoxolone.** Salt retention, high blood pressure, low potassium, paralysis (Ceccuzzi and others 2023, THRIVING library, PH-08).
4. **Bismuth.** Black stool that hides a bleed, encephalopathy with long use, salicylate effects from the subsalicylate (Bradley and others 1989).
5. **Half-courses of antibiotics.** One or two drugs alone breed metronidazole resistance and waste stock (Chiba and others 1992).
6. **Degraded tetracycline.** Kidney tubule damage (THRIVING library, IN-05).
7. **Tranexamic acid in gut bleeding.** No benefit and more clots (Roberts and others 2021).
8. **Calcium restriction for stones.** More stones, through higher urinary oxalate (Borghi and others 2002).
9. **NSAIDs.** They cause ulcers and bleeding, and they harm a failing or dry kidney [VERIFY].
10. **Pethidine.** More vomiting and no better relief (Holdgate and Pollock 2005).
11. **Chanca piedra.** Abdominal pain in two thirds of an uncontrolled series, and false reassurance (Pucci and others 2018).
12. **Over-diuresis.** Low sodium, high potassium, kidney failure and encephalopathy (Aithal and others 2021).
13. **Large taps without albumin.** Circulatory collapse after more than 5 L (Aithal and others 2021).
14. **Liver tonics.** Comfrey, germander, kava, Crotalaria and others (THRIVING library, TR-15).
15. **False hope in kidney failure.** Herbal kidney cures and promises a village cannot keep.

5. Red flags

Send to the district infirmary, or call the person who can open a belly (THRIVING library, WO-08), for any of these:

- Vomited blood, coffee grounds, or black tarry stool with fast pulse or fainting. Black stool on bismuth with a normal pulse is not the same, but check it.
- Sudden severe belly pain with a rigid board-like belly. This is perforation until shown otherwise (THRIVING library, WO-08).
- Colic with fever, chills or confusion. This is the infected obstructed kidney.
- Right upper belly pain with fever and jaundice. This is an infected bile duct.
- Severe upper belly pain through to the back with vomiting, after a fatty meal or heavy drinking: pancreatitis [VERIFY].
- Very little urine, or none, for a day.
- New indigestion over 55, trouble swallowing, weight loss, persistent vomiting, or anaemia. Think cancer.
- "Indigestion" with sweating, breathlessness or pain spreading to arm or jaw. Think heart.
- A cirrhotic with fever, belly pain or new confusion. Think infected ascites or a bleed.
- Bloody diarrhoea for over two weeks with weight loss.

6. The case against

Against eradication. The strongest evidence in this chapter needs drugs the village will not have for long. Each course spends about 100 antibiotic tablets on a disease that rarely kills [VERIFY]. Without a test, some people will be treated who do not carry the bacterium, and resistance will rise. A district could choose to keep its tetracycline for typhus and cholera and its metronidazole for abscesses and amoebae. That is a defensible choice, and the owner should make it knowingly [OWNER].

Against conservative gallbladder care. The trials ran in hospitals that could operate at once, so 0.5 per cent mortality may be an underestimate [VERIFY].

Against the stone advice. The record comes from calcium stone formers in Italy and America. Three litres of clean water a day is not trivial where water is carried.

Against the liver protocols. Diuretic dosing in cirrhosis is a laboratory art, and a village without sodium and

potassium levels will overshoot. Some will argue for palliating ascites rather than treating it.

Against the whole chapter. Without endoscopy, imaging or a laboratory, a village will miss cancers and misread colic. The protocols are built for that blindness, and the red flags catch part of what they miss.

7. 10-line summary

1. Ulcers relapse for decades. Bismuth, tetracycline and metronidazole eradicated Helicobacter in about 94 per cent in early pooled trials (Chiba 1992).
2. Never give one antibiotic alone for an ulcer. Never give the Sippy milk and alkali.
3. Cabbage juice is harmless and unproven. Mastic eases duodenal ulcer symptoms. Liquorice heals and poisons by the same molecule.
4. In a bleeding ulcer, transfuse only for collapse and give no tranexamic acid.
5. Reflux: lose weight, raise the head of the bed on blocks, lie on the left side.
6. Most gallstones never hurt. Most cholecystitis settles with rest, fluids and antibiotics.
7. Stones: NSAIDs first for colic. Most small stones pass within a month. Fever with a stone is an emergency.
8. Prevent stones with water, normal calcium, less salt and meat, and lemon juice.
9. Without dialysis, frail elderly people lose little. The young die within about two years.
10. Cirrhosis: stop drink, cap salt, weigh daily, tap small volumes, lactulose for confusion. Milk thistle does not help.

8. Open questions

1. What did the San Quentin cabbage trial and the Doll and Pygott trial actually find?
2. What fraction of ulcer bleeds stopped by themselves before endoscopy, by age?
3. How well does the bismuth regimen work without an acid drug, and can doxycycline replace tetracycline?
4. What is the stone burden in a hot, poor, post-Fall population, and how common will childhood bladder stone become on cereal diets?
5. What are the Powell and Klatskin survival figures by abstinence?
6. Which salvaged diuretic regimen is safest without blood tests?

9. Sources to read in full

- Chey and others 2024, the ACG Helicobacter guideline, for the bismuth dose table.
- Malfertheiner and others 2022, Maastricht VI, for regional resistance and doxycycline.
- Aithal and others 2021, the British ascites guideline, which I read only in part.
- Vilstrup and others 2014 and EASL 2022, on encephalopathy.
- Cheney 1949 and 1956, Doll and Pygott 1954, for the cabbage record.
- King's Primary Surgery and Hesperian's Where There Is No Doctor, for district surgery and village wording. I did not read either for this report.

At the bedside after the Fall

Household. *To start:* a water jug filled each morning, low salt, chalk and cabbage in the pantry, lemons where they grow, and the section 5 red flags pinned up. *First failure to expect:* home antacid used daily for months with milk, or liquorice tea taken by an elderly person with swelling.

Village of 300. *To start:* one person trained to take an ulcer history, read the pulse and see jaundice in daylight. A scale for weighing cirrhotics daily. A locked box holding the dispensary's ulcer courses, lactulose and colic analgesics, logged by course [OWNER]. A rule on spirits from the still [OWNER]. *First failure to expect:* a black-stool patient on bismuth reassured while bleeding, or a feverish colic sent home with painkillers.

District of 3,000. *To start:* transfusion with grouping, a sterile tap kit, a surgeon able to manage the WO-08 belly, ultrasound if power allows. A register of stone formers, ulcer bleeders and cirrhotics. Records of ulcer courses given and their outcomes, to show whether the salvaged regimen still works [VERIFY]. *First failure to expect:* the infected obstructed kidney with no way to drain it. Expect one to three a year [VERIFY].

Protocols

Protocol 1. Dyspepsia and the suspected ulcer

1. Ask about pain pattern, black stool, vomiting, swallowing, weight, age and drugs (aspirin, willow bark, NSAIDs). Any red flag goes to section 5.
2. Stop NSAIDs and aspirin where possible.
3. Small regular meals. Raise the bed head on blocks if heartburn is worse at night.
4. Antacid: chalk (calcium carbonate) 0.5 to 1 g when needed, no more than 4 g a day, no more than two weeks, none in kidney failure [VERIFY, inference from Medarov 2009]. Bicarbonate as ME-08 sets.
5. Optional: mastic 1 g a day for two weeks (PH-02, Al-Habbal 1984), or cabbage juice up to about 1 L a day.
6. Review at two weeks. If pain returns for months, consider Protocol 2.

Protocol 2. Salvaged eradication course

Indication [OWNER]: a previous bleed or sealed perforation, or a disabling ulcer that keeps relapsing. Not for children under 8 or pregnancy [VERIFY].

Drug	Dose (Chey 2024)	Dose (Graham 1992)	Days
Tetracycline	500 mg four times daily	2 g a day	14
Metronidazole	500 mg three or four times daily	750 mg a day	14
Bismuth	Four times daily, dose in a table I did not read	Subsalicylate tablets of 151 mg bismuth [VERIFY count]	14
Acid drug	PPI twice daily	Ranitidine 300 mg a day	14

- Check tetracycline against IN-05: discard if brown, sticky, or ever hot or damp.
- If there is no acid drug, give the three-drug course anyway and expect lower cure [VERIFY].
- Warn of black stool and tongue. No alcohol. Never one or two drugs alone.
- Record the course and whether the pain returns within a year.

Protocol 3. The bleeding ulcer

1. Lie the patient flat with legs raised if faint. Nothing by mouth for 24 hours.
2. Pulse and blood pressure every hour for six hours, then every four. Note each vomit and stool.
3. Fluids by mouth after 24 hours if stable. Intravenous or rectal fluids if shocked (THRIVING library, WO-08).
4. Transfuse only for collapse, or if a laboratory shows haemoglobin below 7 g/dL (Villanueva 2013).
5. No tranexamic acid. No aspirin or NSAIDs.
6. A rebleed (fresh vomit, fainting, pulse rising by 20 or more [VERIFY]) means transfer to the district.
7. After recovery, start Protocol 2 [OWNER].

Protocol 4. Gallbladder attack

1. Colic under the right ribs lasting hours, often after food. Paracetamol, or an NSAID if no ulcer or kidney disease.
2. If there is fever and tenderness under the right ribs, this is cholecystitis. Nothing by mouth for 24 to 48 hours, fluids, and antibiotics per IN-05 [VERIFY choice].
3. Expect settling in two to four days in about nine of ten patients (Loozen 2017).
4. Jaundice, high fever with shaking, or no settling by 72 hours [VERIFY] means transfer.
5. Afterwards, small low-fat meals by tradition. One in five will have another attack (Loozen 2017).

Protocol 5. Renal colic and passing the stone

1. Colic from loin to groin, restless patient, perhaps blood in the urine. Check temperature. If over 38 °C, go to Protocol 6.
2. Diclofenac 50 mg three times daily by mouth, or 75 mg by injection, for up to 3 to 10 days (EAU 2025, Pathan 2016). Or paracetamol 1 g, up to four times daily. Not NSAIDs in kidney failure, dehydration, pregnancy or active ulcer.
3. Opioids only if NSAID and paracetamol fail. Never pethidine.
4. Normal drinking, not forced. Strain the urine through cloth and keep the stone.
5. Expect most stones to pass within 2 to 6 weeks (Miller and Kane 1999).
6. Pain beyond six weeks, both sides at once, or a single kidney means district review [VERIFY].

Protocol 6. The infected obstructed kidney

1. Colic with fever, shaking, confusion or low blood pressure. Treat as sepsis.
2. Start the strongest available antibiotic at once (IN-05). Fluids by mouth or vein.
3. Send to the district in the same hour where possible. Decompression halves mortality (Borofsky 2013).
4. Do not wait to see if the stone passes.

Protocol 7. Preventing the next stone

1. Fluid 2.5 to 3 L a day, more in heat, so urine is pale and about 2 to 2.5 L (EAU 2025, Borghi 1996).
2. Calcium-rich food with meals, about 1 to 1.2 g calcium a day. Do not cut it (Borghi 2002).
3. Salt 4 to 5 g a day. Animal protein about 0.8 to 1 g/kg a day.
4. Limit spinach, rhubarb, beet greens and nuts. No vitamin C pills.
5. Lemon juice about 120 mL a day in 2 L of water (Seltzer 1996).

Protocol 8. Ascites in the cirrhotic

1. Stop alcohol. Salt 5 to 6.5 g a day. No potassium salt substitutes.
2. Weigh each morning, same scale, same clothes.
3. If diuretics are held: spironolactone 100 mg, adding furosemide 40 mg. Step up every 3 to 5 days [VERIFY interval] to at most 400 and 160 mg. Weight loss no more than 0.5 kg a day, or 1 kg a day if the legs are swollen (Aithal 2021, EASL 2018).
4. Stop diuretics for confusion, cramps, falling urine or rapid weight loss.
5. Tense, breath-stopping ascites: tap at the infirmary, under 5 L, sterile, needle at least 8 cm from the midline and 5 cm above the pubic bone (Aithal 2021). Who may tap is [OWNER].
6. Fever or belly pain with ascites is infection. Antibiotics per IN-05, then the prophylaxis in section 1.11.

Protocol 9. Confusion in the cirrhotic

1. Look for the trigger: black stool, fever, constipation, dehydration, diuretics, sedatives.
2. Lactulose 25 mL every 1 to 2 hours until two soft stools, then enough for two to three soft stools a day (Vilstrup 2014, EASL 2022).
3. Keep feeding. Do not stop protein [VERIFY].

Protocol 10. Kidney failure without dialysis

1. Suspect from swelling, little urine, itching, nausea, and diabetes or high blood pressure.
2. Stop NSAIDs, Aristolochia and other kidney poisons (TR-15). No potassium salt substitutes (CH-02).
3. Protein about 0.6 to 0.8 g/kg a day, mostly from plants. Salt low [VERIFY].
4. Furosemide for swelling and breathlessness if held (ME-09).
5. Speak honestly with the patient and family about the course and the end. Plan comfort care. For the frail elderly the loss without dialysis is small (Chandna 2011).

Numbers to carry

1. Graham 1992: duodenal ulcers recurred in 12 per cent after the bismuth regimen, against 95 per cent without it.
2. Bismuth, tetracycline and metronidazole for 14 days. Never one alone.
3. Chalk: no more than 4 g a day. Calcium over 4 to 5 g a day causes milk-alkali syndrome.
4. Transfuse a bleeding ulcer only for collapse, or below haemoglobin 7.
5. Acute cholecystitis settles without surgery in about 87 per cent.
6. Stones under 5 mm pass in about 75 per cent, mostly within a month.
7. Urine of 2 to 2.5 L a day halves stone recurrence. Keep calcium at 1 to 1.2 g a day.
8. Stone plus fever: mortality about 1 in 5 without drainage, 1 in 11 with it.
9. Ascites: salt 5 to 6.5 g a day, weight loss no more than 0.5 to 1 kg a day, taps under 5 L.

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