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obtained upon the clerics and physicians of the Middle ages, until **Arabs and Muslims** through observations and cadaveric dissection reviewed the human anatomy as we know it now; more importantly Arabs kindled a surgical interest in the closed abdominal cavity and endeavoured to put such an operative enterprise into a successful routine practice. The translated Latinized versions of **Haly Abbas' "Liber Regius"**; **Albucasis' "Al Tasrif"**; **Avicenna's "Al Canon"** and **Rhazes "Liber Continens"** were then used as the only standard textbooks in the medical schools of western Europe from early 11th century to the early 18th century (inclusive) and were considered, by many, the main source for European Renaissance in Medicine and Surgery. Each translator was given the equivalent weight of the book in gold; some translators may have cheated by translating only few chapters claiming it is the whole book in order to get its equivalent weight in gold!

**Vesalius** thereafter, through his Arabic education (taught by able bi-linguistic Jewish Doctors) popularised their observations with his own in his book: 7 volumes on the structure of human body (**De Humani Corporis Fabrica Libri Septem**).

Abdominal exploration in those days would be considered a surgical break-through, an innovation requiring 5 essentials, namely: an in-depth knowledge of anatomy, anaesthetics to kill pain, a method for controlling bleeding (haemostasis), a knowledge of infection and its prevention (anti-sepsis), and manufacturing of the proper tools and instruments for surgery.

### LAPARATOMY IN ABDOMINAL TRAUMA

**Abu Al-Qasim Al-Zahraw** or **Abulcasis** or **Albucasis**, 936-1013 AD (Andalusia-Spain) in chapter 85 of the 2nd section entitled '**On wounds of the abdomen, and protrusion of the intestine; and on suturing them**' of his book "**Al Tasrif Liman Ajaza An Al Ta'leef**" (Presentation of Medical Knowledge for the Man who Cannot Compile it Himself) [original manuscript possessed by Wellcome Institute of History of Medicine] produced the first and the most authentic description ever contained in the literature on the abdominal trauma, its complications and surgical treatment required.<sup>1</sup>

Wound cleansing after trauma was a focal point; latterly, this was adopted as **skin preparation prior to any procedure** carried out locally. Various methods of antisepsis were used, namely:

1. Cleansing skin with Alcohol (discovered and used by Rhazes).<sup>2</sup>
2. Cleansing skin with Soap and Water. Initially, Arabs discovered the cleansing power of frothy Lotus (Christ's-thorn) leaves in water. Latterly Arab chemists manufactured soap.
3. Cleansing skin with cotton and Oil of Roses (Rose-Water).
4. Cleansing skin with Vinegar and Olive-Oil.
5. Cleansing skin with Water and Honey.

As far as anaesthesia was concerned **Peri-operative opium infusion** was in common use for inflammatory conditions associated with **severe pain** as well as painful operative procedures, such as dental extraction, and reduction of fractures. **Poppy seeds** were used in oral pre- and post-operative analgesic syrups or paste; their boiled solution was often used for inhalation. The "**Arabian Nights**" (**Sir R. Burton**), however, contains reference to anaesthesia by inhalation. **Theodoric of Bologna** (1206-1298), whose name is associated with the "**soporific sponge**", got his information from Arabic sources; the sponge was steeped in aromatics and soporifics and dried; when required it was moistened and applied to lips and nostrils<sup>3</sup>. The Arabic innovation entails the immersion of the so-called "**anaesthetic sponge**" in a boiled solution made of water with a unique mixture of **Hashish** (from Arabic Hasheesh), **Opium** (from Arabic Afium), **C-Hyoscine** (from Arabic Cit Al Huscin), and **Zo'an**, Arabic for wheat infusion acting as a carrier for active ingredients after water evaporation. Arabs in Andalusia were the pioneers of artificial ice making. Local freezing or rubbing with ice was used for local anaesthesia in external operative procedures of minor nature. Opium syrup was used for postoperative analgesia.<sup>3</sup>