Interventional Physiology on the Stomach of a Live Lion:
Aḥmād ibn Abī al-Asḥāṭh (959 AD)

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The recent article by Amjad Hussain1 reminded me of Aḥmād ibn Abī al-Asḥāṭh (d c 975 AD) [‘Asḥāṭh means disheveled], the famous old physician from Mosul, Iraq, who was also a great and wise teacher and the renowned author of several medical books. He described the physiology of the stomach in a live lion in his book al-Qūf wa al-Muqtaḏi, which he finished writing in April 959 AD at the Castle of Barqa in Armenia.2 A manuscript fragment of al-Qūf wa al-Muqtaḏi is preserved in the British Museum (Supplement 786).2,3 I have a photographic copy of this manuscript in my library.4 Ibn Abī Uṣaybi’ā in 1270 AD quoted the section on gastric physiology2 (figure). An English rendition of this very interesting quote follows:

When food enters the stomach, especially when it is plentiful, the stomach dilates and its layers get stretched; I observed this in a live lion which I dissected in the presence of Prince Ghadanfar [Al-Ḥumadānī, the governor of Mosul, 939-979 AD]. Some onlookers thought the stomach was rather small, so I proceeded to pour water in the lion’s mouth and continued to pour jug after jug in its throat; and we counted until the stomach filled up with about 40 ṭal [equivalent to 18 liters]. The inner layer of the distended stomach became as smooth as the external peritoneal layer. I then cut open the stomach and let the water out. The stomach shrank and I could see the pylorus. God is my witness.

This sounds like a pretty heroic procedure that, to our knowledge, has no parallel in the annals of medical history. To borrow a term from röntgenology, one could say that this is real interventional anatomo-physiology at its best. By initiating one of the first experimental events in gastric physiology, the observation of the physiology of the stomach in a live lion in 959, Aḥmād ibn Abī al-Asḥāṭh preceded William Beaumont († 1853) by almost 900 years. He should be given proper credit for his truly pioneering work.

References

Figure. A transcript of the relevant passage from al-Qūf wa al-Muqtaḏi as quoted in reference 2.

قال ابن أبي الأشعث بعد ذلك إن الغذاء إذا حل في المعدة وهو كثير الكمية تمددت تمددت تمددت ثم طبطبب
سائ رضويه كما رأيت ذلك في سبع شرحته حباً بحضور الأمير الغضنفر وقد استنتج بعض
الباحثين هذهه فتقدمت بصب الماء في فيه مما زلنا نصب درولاً بعد آخر حتى عدنا من
الدوران عددًا كان مقدار ما نحو أربعين رقلاً ماء فنظرتم فذاك إلى الطبقة الداخلة وقد
امتدت حتى صار لها سطح مستو ليس بدون استواء الخارج ثم شققتها فلمما اجتمعت عند خروج
الماء منها عاد غضون الداخلة والباب يشاد بهسل في جميع ذلك لا يرسل نفسه