



Editorial

EURAPS Editorial 2019: “Bisturi, please” said the surgeon to the scrub nurse



Abstract

Our everyday use of the word “scalpel” creates a familiarity with the name that belies our ignorance of the historic origins of this instrument. Through linguistic analysis, the origin of the blade, with which we incise, is investigated.

“Langenback retractor please” “Kocher clamp please. No, sorry, a Crile please, instead”. How often do we as Surgeon’s ask for an instrument by name, recalling, if perhaps only in our subconscious, Surgery’s Giants of our past. Bernard Rudolf Konrad von Langenback, the pioneering German surgeon who trained both Bilroth and Kocher.¹ Emil Theodor Kocher, who won the Nobel prize in Medicine in 1909 for his work on thyroid surgery.² George Washington Crile,³ who created “balanced anesthesia”, did important head and neck cancer surgery, and initiated the Cleveland Clinic. Yet when we ask for a “scalpel” we never have known to think back to bisturi or the derivation of the name of one of our most important surgical instruments.

Perhaps this reminds you of Shakespeare’s phrase,⁴

“What’s in a name?

That which we call a rose

By any other name would smell as sweet.”

Perhaps “Bisturi, please,” was what the surgeon asked for prior to 1742. According to Miriam Webster,⁵ Latin, *scalpellus*, *scalpillum*, diminutive of *scalper*, *scalprum* chisel, knife, from *scalpere* to scratch, carve, was not used until 1742. So what was the instrument named that the Surgeon, then a “Barber Surgeon” would use.

Most of the languages use the word *scalpel* from Latin *scalprum* (verb *scalpere* i.e. to incise) while only few like Italian, French, Catalan, Albanian use *Bisturi*, and to some extent Turkish too. “Bisturi” has a unique origin, referring to the late-medieval term *bistorio*, a very sharp small knife in pure steel. This name is reported to derive from *Pistorium* the old Latin name for the city *Pistoia* in Italy (Figure 1), where it was reported there were living skilful artisans able

to handcraft the “*Pistorienses gladii*”, typical sword produced in that city.^{6,7} It is further reported that the word *bistorio* later passed through France where was distorted into *bistouri*, meaning also knife and then went back to Italy with the actual meaning.^{8,9}

This is possible but appeared weird to me because of two reasons. The history of surgery and its tools does not start from late medieval time but is dated back to 400 BCE. in the hands of barbers and priest, with reports of surgical instruments already produced at the time of the Roman Empire or earlier, hence is missing a term for surgical scalpel until the pre-medieval age. Although should be consider that the name of the city originates from Latin *Pistorius* or *Pistor*, meaning miller or baker (Figure 2), as in the 2nd century BC the city became an un *oppidum* of Rome to feed Roman army during the battles against Liguri.¹⁰ It is well-known that in the last phase of the Roman Empire the production of iron equipment for army and swords too, was established mainly in the north-centre of Italy.¹¹ Following the fall of the Roman Empire, it is mostly possible that these factories and artisans which have developed a dedicated skill to the production of iron instruments, changed their production line towards surgical instruments and similar. Their skill can be confirmed, which can explain why nowadays the etymology of the word is still confused with the name of the city.

Investigating my search on the possible Greek root of the term, I realized that the modern Greek word *νυστέρι*, sounds very similar to *bisturi*, but surprisingly the same word is not present in the old Greek. In fact, it is not probable as well that the term *νυστέρι* might come from a medieval coined term *bistorio*, lately adopted by modern Greek, but most probably the term that originated in the modern Greek had an autonomous development from the old Greek verb *νύσσω* meaning to cut, *κοφτερό λεπτό νυστέρι χειρουργού* (sharp thin knife for surgery). Furthermore, from an etymological point of view it should be noted that it is difficult to put in relation *νυστέρι* with *bisturi* because the initial consonant “ν” of *νυστέρι* is a nasal, while the initial consonant “b” of *bisturi* is a labial, thus

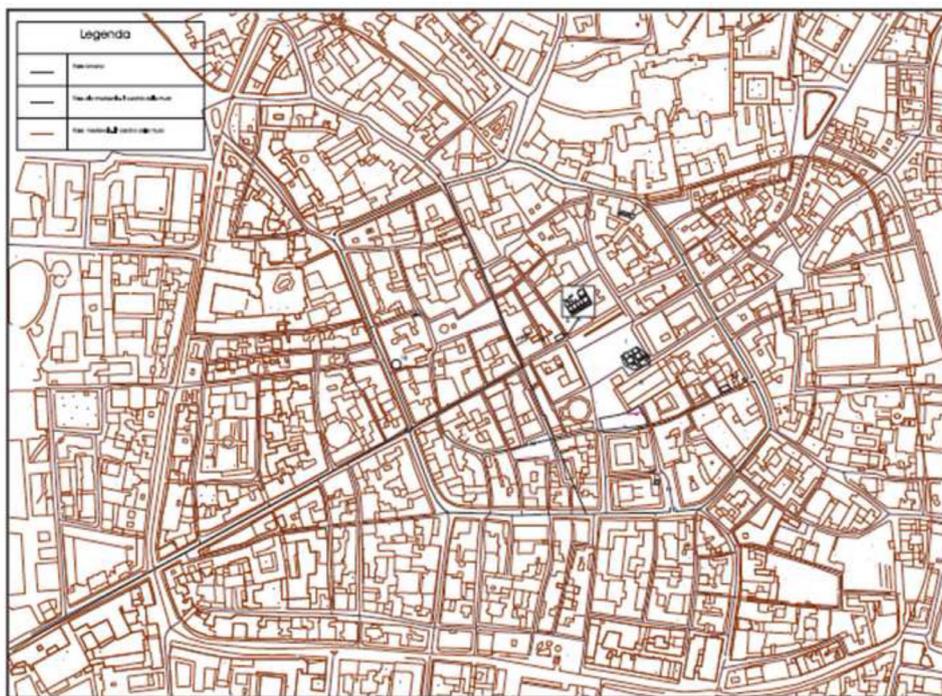


Figure 1 View of Pistoia, clearly visible in the center the remnants of the Roman fortification, around the actual Piazza del Duomo. Build by Romans in the II BC, as an “*oppidum*” fortified city for “*mutatio*” a place where roman legions could change horses and feed themselves.



Figure 2 Image of a “*Pistorium*” place where “*pistores*” knead bread (from Weronika Kolasinska).

one might not be replaced with the other. From that point of view it is more possible that the origin from a similar labial consonant word as it is the “*p*” of *Pistorium*, changing into *bisturi*, both labial. It is most probable that the link between the French *bistouri* and the Italian *bisturi* is the pronunciation: it is true that *bistouri* is a truncated word while *bisturi* is a slips word, but differently from *νυστέρι* in quick pronounce, they become very similar if not the same. Finally, from a geo-historic point of view, we shouldn’t be surprised if the name of a same object might have different derivations.

The similarity of the term *bisturi* to the Turkish word *bicagi* was also investigated. The word *bicak* is Turkish and Altaic in origin. It is used to refer to a knife of almost any kind and very few surgeons use this word to refer to a surgical scalpel. In the modern Turkish language, the Greek word *ksystra* as *sistre* is used for a manual tool using to carve wooden material.¹² A similar word in Turkish *ustura*, which came from Persian *usturre*, is used to refer barber’s straight razor.¹³ The similarity between *bisturi* and *ustura* is remarkable in Turkish, but the word *bisturi* had been used to refer surgical scalpel only after foundation of modern



Figure 3 Scalpelli or cultelli bistorti according to “L’histoire de Percy”.

Turkish Republic on 1923, and this word had been directly transferred from French to modern Turkish language.¹⁴ In medieval times, a surgical scalpel had been called a *nester* originating from Persian for centuries in Turkish empires.¹³ Although even the word *nester* seems to have some similarity with *sistre* or *bisturi*, there is no evidence that this word has Latin origin.

On Google in the online books section “L’histoire de Percy”, shows an interesting historical documentation of cutting instruments from Roman and Arab time to arrive later to an instrument named “*rasorium*” (*scalprum usitatum ad barbae rasuram*), similar to a clasp knife having the blade with a sharp tip. Subsequently the tip was eliminated and the blade became more rectangular and similar to modern razors. The “*rasorium*” was used both to shave beard and for surgical incisions (*scalprum parvum ad chirurgia aptum*). It is possible that later this “*barber-surgeons*” to distinguish themselves from standard “*barbers*” but also to enhance its use, modified again the “*rasorium*” giving back a curved tip with a bilateral cutting edge mounted on a straight handle.^{15,16}

Well, according to Percy those knives with double sharp curved edges were named “*scalpelli bistorti*” or also “*cultelli bistorti*”¹⁵ (Figure 3). Those kinds of scalpels were developed in the past to accomplish the practice of surgery and *exanguinatio* (blood letting) by easier penetration of

the skin with a double cutting edge scalpel, which could cut with both sides. There is an example of *scalpellum bistortum* within the medical instruments on display in The Fort Alamo, San Antonio USA, where there was established a Spanish religious community to spread the Christian religion in South America and the military fort (Figure 4).

The use of the tool named *bisturi* could have possibly originated in Italy from the Latin *scalpellum bistortum* and then changed into *bistorio*, later when the Vatican with the first and second *Concilio Lateranense* on 1123 and 1139 strongly forbid priests and deacons to practice any activity with blood, being a sin and a sacrilege. Following that, all surgical activity went into hands of barbers until 1450 when the UK parliament limited their activity to blood letting, dental extraction and haircuts. Henry the VIII also gave them the possibility once a year to have cadaver for anatomical dissection studies.¹⁶ Due to the active commerce at that time the term could have passed easily from Italy to France, being modified as *bistouri*, and then from there to Cataluña and Albania for the intense commercial exchange between the countries following the expansion of Carlo d’Angiò, conquering Durazzo in 1272 and establishing there the capital of the Kingdom of Albania. Carlo in fact was not only the son of Luis VIII King of France and Bianca of Castiglia, daughter of the King of Castiglia Alfonse VIII, but he also was the King of Sicily from 1266 to 1282 and later King of



Figure 4 Scalpellum bis torcum in use on '700 in Sant'Antonio de Valero Mission, named Fort Alamo, USA.

Napoli until 1285, the latter often contended by the Spanish Crown.¹⁷⁻¹⁹

In conclusion, we believe that the actual tool *bisturi* may well originate from the *sculprum rasorium* first in use to barbers, later forced to take over the whole surgical activity with the need to modify the tool with a curvature on both side to better accomplish surgical requirements. To better identify their upgraded activity, compared to the close related barbers only, the *rasorium* was then differently named as *scalpellum bistortum*, from “bis” twice and “tortum” the Latin verb “torqueo” to curve/turn.

Although this can then confirm the medieval timing of the origin of the term *bisturi* in Italy, it contradicts the etymology from the sword activity in the city of Pistoia, as reported on many websites as well as in authoritative dictionaries, giving it a more reasonable etymology from its feature and production.

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