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Editorial

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Semiotics and clinical reasoning: Thoracic ultrasound as an epistemic mediator

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Clinical medicine and philosophy of science have come closer together during the past 30 years, particularly in the area of diagnostic reasoning. I contributed to this intertwining thanks to my studies on abductive cognition [1-5]. Even while the scientific side of medicine has been improved by developments in physiology, imaging, and artificial intelligence, the first, direct interaction with a patient is still a very human cognitive act. It is still difficult to find straightforward but effective conceptual tools that may combine traditional semiotics with contemporary technologies. This issue's article by Soldati and colleagues presents a relevant, philosophically sound suggestion to redefine the chest physical examination around three pillars rather than four [6]. It does this by positioning thoracic ultrasonography, or "insonation", as an active cognitive partner at the core of clinical epistemology [7].

The key points made by Soldati et al. are succinctly summarized in this editorial, along with their wider implications for respiratory medicine and clinical reasoning in general [7]. The writers start by going over the fundamentals of clinical knowledge. They remind us that diagnosis is a fallibilistic, iterative search for the optimal explanatory hypothesis rather than a deductive or merely inductive process by drawing on Peirce's pragmatic semiotics and abductive inference. The abductive framework is used to gather, analyze, and continually update signs and the concept of epistemic mediators, which I first proposed in the late 1990s and early 2000s, is introduced and explicitly expanded upon in this cycle. These are tools and artifacts that act as real cognitive actors mediating between the patient's body, the doctor's mind, and the environment.

Bedside thoracic ultrasonography is a wonderful fit for this job, according to Soldati et al. [7]. It actively contributes to the abductive loop by producing new surprises that lead to new hypotheses; it magnifies signs that are imperceptible to conventional examination, palpation, percussion, and auscultation; and it converts acoustic energy into visual evidence. The use of insonation as a semiotic device is demonstrated in a particularly elegant section. According to the authors, percussion and ultrasound are quite similar in that they both use acoustic waves, are bedside, inexpensive, and instantly interpretable. The structural and functional correlations of classic signs (Damoiseau-Ellis line, Grocco's triangle, Garland's triangle, lung point, abolished sliding, sonographic interstitial syndrome, bronchograms) are revealed by ultrasonography. In doing so, it does more than just take the place of percussion; it clarifies, corrects, and occasionally makes earlier findings obsolete. The CHEPHEUS project (CHEst PHysical Examination integrated with UltraSound), already in its second phase [8], operationalizes this vision by proposing a modern triad: visual inspection, auscultation integrated with ultrasound, and palpatory ultrasound evaluation. Three pillars are sufficient; percussion is no longer required as a stand-alone pillar.

The hermeneutic dimension is equally significant. The study conventionally but skillfully combines Gadamer's fusion of horizons, Ginzburg's evidential paradigm, and Peircean abduction [7]. Both the patient and the doctor contribute their own assumptions, which are transformed into a shared, more expansive diagnostic horizon by the iterative semiotic process mediated by ultrasound. Because ultrasonography functions as an active epistemic mediator rather than a passive scanner, serendipitous findings - such as pleural thickenings found by accident during effusion evaluation - become clinically significant.

The writers take care not to exaggerate the argument. They recognize the danger of overconfidence, training unpredictability, and interpretive bias. They maintain that ultrasonography must be taught thoroughly and stay in the hands of the doctor doing the physical examination. Additionally, they make it clear that by maintaining the inferential loop firmly rooted in the doctor-patient relationship, this new semiotics humanizes the use of technology and artificial intelligence rather than rejecting them.

This work is very helpful in a number of ways. First, it maintains philosophical depth while converting abstract epistemological ideas into practical therapeutic practice. Second, it provides a tangible method for respiratory medicine to reclaim its prominence in a time when algorithms and remote imaging rule. Third, the proposal is immediately testable: the ongoing CHEPHEUS studies will soon provide empirical validation [8]. Gino Soldati and the entire AdET team deserve our gratitude for their brave and well-reasoned contribution. In addition to honoring the traditional foundations of clinical examination, their research demonstrates how the philosophy of science might actively influence medicine in the future. By acknowledging thoracic ultrasonography as a genuine epistemic mediator, they have provided us with a paradigm that extends well beyond the chest to any bedside device that enhances the hermeneutic discourse between the patient and the doctor, amplifies symptoms, and initiates abduction.

Indeed, a new chest semiotics is long overdue. Three pillars are more than sufficient when insonation is used effectively.

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