

## The Doctor's Dilemma Updated

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George Bernard Shaw's play *The Doctor's Dilemma*, written in 1906, deals only incidentally with medicine.<sup>1</sup> In passing, however, Shaw makes astute observations on the questionable relationship between medicine and science, and he is acutely aware of the hubris born of it. Indeed, his surgeon believes that all ills stem from infection of the "nuciform sac," which must be extirpated from the unfortunates who possess one, comprising 95% of humanity. This character prefigures the past decade's absorption with grommets and coronary bypass.

An exchange, occurring early on between two physicians, runs as follows:

BLINKINSOP: . . . Ive forgotten all my science: whats the use of my pretending I havent? But I have had great experience: clinical experience; and bedside experience is the main thing, isnt it?

B.B.: No doubt; always provided, mind you, that you have a sound scientific theory to correlate your observations at the bedside. Mere experience by itself is nothing. If I take my dog to the bedside with me, he sees what I see. But he learns nothing from it. Why? Because he is not a scientific dog.

A little later on, the same B.B., an eminent internist who, according to his colleagues, is insufficiently grounded in immunology, addresses the following to his patient, a young artist of great promise with tuberculosis and pronounced sociopathic tendencies: "If you had been scientifically trained, Mr. Dubedat, you would know how very seldom an actual case bears out a principle. . . . I have actually known a man die of a disease from which he was, scientifically speaking, immune. But that does not affect the fundamental truth of science." One cannot escape the notion that Shaw was sparing neither medicine nor sci-

ence his wit, and Emmy's brief speech, almost at the beginning of the play, substantiates it. Emmy is Dr. Ridgeman's serving woman, homely as sin, streetwise, and thoroughly uneducated: "Oh, I don't think much of science; and neither will you when you have lived as long with it as I have."

A brief case report illustrates the observation that we in medicine in the 1990s have not gotten very far along the road to knowing whether we do more harm than good, a central "scientific" question:

A doctor's wife asked him about a mole on her back that she believed had recently increased in size. The lesion, one of many, appeared benign, but his attention was drawn to a smaller one on the upper arm, distinctly black in coloration. He took her to a dermatologist who, possibly laboring under the spell cast by members of a medical family, recommended immediate excisional biopsy by an experienced plastic surgeon. The procedure was duly performed. A few weeks later, the pathologist's report was issued—superficial spreading melanoma—and the patient was admitted for a wider and deeper excision under general anesthesia.

Around midnight, or some 14 hours after surgery, the doctor, who had gone home to spend the night with his 11-year-old son, received a worried telephone call from the resident on duty in the hospital's surgical wards.

"Has your wife ever had any trouble with her heart?"

"No, why?" the doctor responded.

"She has been complaining of weakness and there are ECG changes suggestive of ischemia. We have paged the internal medicine consultant."

An hour later, the resident called again, sounding much relieved. The consultant had interpreted the tracing as indicative of hypokalemia, and the biochemistry lab had confirmed the suspicion: the serum potassium level was 2 mEq/L! The offending glucose infusion, which had been allowed to run too long, was discontinued, potassium was administered, and there was a rapid improvement in the patient's condition.

The ensuing 2 weeks were agonizing for the doctor's

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wife because the area from which skin had been removed for grafting onto a large defect over the deltoid muscle was exquisitely sensitive. Ultimately, except for a pale, somewhat depressed scar serving as a reminder of all that had transpired, the affair drew to a happy conclusion.

Sixteen years have passed since then, and the doctor, on occasion, still asks himself if his wife's life was saved by her question to him or whether it was put in harm's way. Given her fair skin and the tens of moles scattered here and there, none differing much in appearance from the two that managed to gain attention, she could easily have been harboring several more deadly lesions. On the other hand, her situation might have been a tribute to an extraordinarily vigilant and efficient immune system.

There are other components of the tale just related that deserve consideration. Let us suppose the patient had been married to a construction worker or a shopkeeper. The dermatologist, who could have been inclined to a benign diagnosis, might then have allowed herself to say: "I don't think it's anything serious. Let me see it again in three months' time, or before that if there are any new developments." We tend to impute certainty and objectivity to a histological diagnosis, often forgetting that the pathologist, too, is human, subject to error and bound by the same constraints that limit the clinician's ability to confirm experience scientifically.

Where malignant melanoma is concerned, the chief constraint is imposed by our ignorance of the natural history of the disease. To learn it, we would have to perform an ethically unthinkable experiment: follow the progression of a localized process. While it seems reasonable to assume that distant metastases are precisely what their name implies, it is also possible that disseminated melanoma is a multifocal malignancy from the outset and not the result of a delay in diagnosing changes in a single lesion. In effect, we can neither prove nor disprove the connection between a nevus "gone bad" and the uniformly fatal disorder we recognize, with the pathologist's help, as metastatic melanoma of the brain, liver, bones, or skin. Since our position is tenuously held, it is surprising that intervention has won out so decisively over masterly inaction. The victory of the former probably has something to do with the decade physicians invest in education and vocational training. One does not go to all that trouble only to let matters ride with the patient!

Another component of the story concerns the choice of treatment. "In effect, the physician uses the results of a clinical trial to establish an experiment in each patient."<sup>2</sup> These words should instill humility, but we tend to be intolerant of deviations from the standard of care, ignoring the possibility that, when someone comes along with enough courage to question it, an extreme change may be precipitated. Thus, in 1979, the recommended margin

for surgical excision of a malignant melanoma, "where possible," was 5 cm.<sup>3</sup> Today it is 1 to 3 cm,<sup>4</sup> with lesions such as that encountered in our patient at the lower end of the scale. Had this rule prevailed then, she would have been spared a general anesthetic, its attendant mishaps, and the extreme discomfort of a skin graft, not to mention an unsightly cicatrix. "Medicine in meeting the needs of patients, and the needs of doctors, assumes the mantle of wisdom, authority and power. There is little room for confessions of ignorance or therapeutic pessimism. Pressures toward activism arise in part from our patients, but the assumption that patients require something to be done also provides a convenient rationalization for meeting our own needs."<sup>5</sup> This certainly has bearing on the defeat of watchful inactivity at the hands of intervention.

Finally, the story illustrates the kind of cause-and-effect reasoning to which physicians are prone, reasoning inapplicable to medicine. If metastases are "caused by" lesions undergoing malignant change, then logic has it that extirpating the lesion will prevent a dire outcome. The contention cannot be proven, however, because medicine is permanently faced with an overwhelming conditional: what *would have* happened to the patient had he or she not been treated at all? We can only compare outcome in one person receiving active therapy with that in someone else given placebo. The potential differences between the two subjects, each with some 100,000 genes, are enormous. Furthermore, rigid cause-and-effect thinking can lead us astray even at the level of a single diagnosis. For example, it has been shown that 20% of asymptomatic young people have evidence of a prolapsed disc when computed tomography (CT) of the lumbar spine is performed.<sup>6</sup> Thus, it is possible that a person with all the clinical hallmarks of a sciatic syndrome and confirmatory CT findings is experiencing pain from another source.

Precisely because medicine is no more a science today than it was 90 years ago, our doctor's dilemma cannot be resolved. On the one hand, it is important for the therapeutic process that patients have confidence in us. "Unfortunately the medical profession, in fulfillment of its social function, pretends to knowledge when it is imperfect or even nonexistent, and is reluctant to confess and to stress the depth of its ignorance."<sup>5</sup> This can lead to statements such as "breast cancer is a terrible disease, and we must do something," inevitably followed by a great deal of wishful thinking of which epidemiology, in particular, is guilty.<sup>5</sup> On the other hand, doctors rely far too often on confirmation, whereas good science looks for refutation.<sup>5</sup> The uncertainties signified by our doctor's dilemma will keep us agonizing even over happy endings for a long time!

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