Family Practice Forum

Family Practice Education and the Evolution of Disease

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Failure to make a precise diagnosis may not always reflect inexperience or inadequate training of the clinician. The following summary describes the course of a patient with a brief, but incapacitating, illness that eluded all attempts at diagnosis until two years later, when it fit the pattern of a newly described disease.

In the summer of 1978, a 14-year-old girl presented with an acute febrile illness, highlighted by nausea, vomiting, and severe myalgias. The review of systems and past medical history were unremarkable. On physical examination her temperature was 103.4 F, pulse 120 beats per minute, blood pressure 80/44 mmHg; there was a generalized maculopapular rash that blanched easily and was accentuated in the skin folds; the pharynx was injected, and a strawberry tongue was present. A tentative diagnosis was made of scarlatina, and a throat culture was obtained.

On the following day she was feeling worse. The throat culture was negative. Abdominal and pelvic examination disclosed exquisite tenderness over the bladder, urethra, and vaginal canal. A urinalysis showed proteinuria (2+), 25 to 50 white blood cells per high power field in clumps, bacteriuria (2+), and many granular casts. A presumptive diagnosis of pyelonephritis was made, and the patient was hospitalized for intravenous rehydration and ampicillin therapy.

After 48 hours she was markedly improved. Questions were raised over the diagnosis, however, when not one, but two urine cultures were reported as having no growth. Her abnormal admission laboratory data were again reviewed: white blood cell count 11,800/cu mm with 83 percent neutrophils, 11 percent band forms, and 5 percent lymphocytes; toxic granulation and Döhle bodies were noted on the peripheral smear; hemoglobin was 14.4 gm/100 ml, hematocrit 41 percent, blood urea nitrogen (BUN) 46 mg/100 ml (normal, 10 to 20 mg/100 ml), creatinine 1.8 mg/100 ml (normal, 0.8 to 1.4 mg/100 ml), total protein 5.5 gm/100 ml (normal, 6.0 to 8.0 gm/100 ml), albumin 3.1 gm/100 ml (normal, 3.5 to 5.0 gm/100 ml), total bilirubin 2.5 mg/100 ml (normal, 0.2 to 1.0 mg/100 ml), SGOT 60 IU (normal, 5 to 40 IU), sodium 130 mEq/liter (normal, 136 to 145 mEq/liter), and potassium 3.4 mEq/liter (normal, 3.5 to 5.0 mEq/liter). This led to reconsideration of an item overlooked in her initial history. She and her brother took care of various pets at their home, including dogs, cats, chickens, rabbits, and bees, suggesting the possibility of still another diagnosis, leptospirosis.

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The patient was discharged on the fourth hospital day. When seen one week later in the office, she was feeling well, but wondered why her hands and feet were peeling. She had marked desquamation over her palms and soles as well as other areas of the body where the erythroderma had been prominent. A blood sample was drawn for an antistreptolysin O titre; it was reported as negative. Several weeks later, a leptospirosis titre drawn in the hospital also was reported as negative. The patient had recovered completely but remained a diagnostic problem.

In the fall of 1980, toxic shock syndrome was described, and another retrospective diagnostic possibility was raised.[1-3] The patient had been actively menstruating at the time of her illness, and a vaginal culture in the hospital had indeed grown Staphylococcus aureus, coagulase positive. On further history, it was found that the patient did use tampons (*O.B.* brand, not *Rely*) during her menses. Although this might seem to clarify the diagnosis, additional questions remain. Was this patient's illness really a specific disease entity seen two full years before it was widely known and accepted by the medical community, was this still another new disease, or was this even an old disease revisited?

It is apparent that many diseases follow their own natural histories in addition to following their own natural courses within individual patients.[4] Diseases that existed in antiquity are unheard of now; for example, the leprosy referred to in the Old Testament bears little, if any, resemblance to the disease described by Hansen in 1874.[5] On the other hand, physicians in the last five years have observed epidemics of diseases that, heretofore, were virtually unknown, such as Legionnaire's disease and toxic shock syndrome. Some diseases, such as epilepsy and gout, have maintained a stable prevalence over generations. At least one condition, coronary artery disease, was extremely rare in ancient times, waxed to pandemic proportions in the mid-20th century, and is now beginning to decline somewhat.[6,7]

The teaching of clinical skills to family practice residents must incorporate the notion that nearly every disease known to man is in the process of dynamic evolution. Some diseases have shorter life spans than do others. Some are extinct. Some have not yet been discovered. In light of this evolutionary process, several measures aimed at preventing stagnation of the family practice curriculum are suggested: (1) Become aware that many changes have occurred in the nature, frequency, and distribution of major diseases, including those which can be attributed to improved medical understanding and use of diagnostic terms. (2) Avoid a dogmatic, unilateral approach in teaching diagnostic and therapeutic techniques. Many a respected physician has been known to contradict, even retract, his own statements over time. (3) Refuse to accept any attempts to incorporate computer assisted diagnosis into a teaching program. Residents must not learn to trust a computer to make a diagnosis, especially when it can only be programmed with static information in a world of dynamic diseases. (4) Finally, consider spending some curriculum hours on the discipline of medical history. By studying how selected diseases originated and progressed to their contemporary state, residents will learn to anticipate the inevitable phylogeny of disease.

Family physicians are well suited for adapting to the challenges posed by diseases in evolution. The family physician not only cares for several generations within a family but also observes the growth and development of each family member over time. Family practice faculty must continue to stress the importance of learning medicine by examining the patient and the family unit because they show us new diseases as well as old diseases manifest today.

References

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