ORIGINAL ARTICLE

Gaze and Medical Diagnosis: A Historical Account of Concepts in Biomedicine

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Abstract

A diagnosis is a transformative act that functions as an interface between illness and disease and takes place at a juncture between patient and doctor. The reason to focus on diagnosis, both as a category and a process, is to emphasize its defining and differentiating role in medicine. That is, diagnosis provides the framework within which medicine operates and exerts its role. The paper attempts to highlight the role of gaze and concepts in the larger frame of change concerning medicine through the construct of diagnosis. The purpose is to destabilize the interactive configuration of social, economic, political, and technological impulses that has been the dominant mode of theorizing various shifts in medicine. In accord with the concept of the paradigm shift that explicates fundamental change in practice and experience of sciences, the process of diagnosis offers the vantage point to understand changes in medicine. The argument is substantiated by providing a historical account of clinical medicine to trace changing notions of health, disease, and the body owing to changes in diagnosis and gaze in particular.

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Introduction

Concepts of health and disease never remain static. They change as the ideas held about their nature evolve. To understand how the concepts of disease, health, and illness are framed, diagnosis offers a critical perspective. It also provides an insight into the forces that shape our knowledge and practices. Diagnosis begins at the sight of the eye, corroborated by other senses or by the sophisticated instruments and what the doctor already knows and believes followed by the words: as John Berger (2008) puts it, "seeing comes before words". Thus, diagnosis is a verbal and transformative act that reproduces a patient's illness narrative into a concrete medical fact called a disorder, disease, or syndrome. A diagnosis is an assemblage of the bits of information through various medical tests and other works to produce a clearer picture and thereby frames an individual experience; that is, at the moment of diagnosis, one embodies the disorder and possesses an identity (Jutel 2011, p. 190). For example, a person diagnosed with diabetes becomes diabetic.

At the broader level, diagnosis represents society as a collective frame as normal and pathological. In this sense, diagnosis provides a cultural expression of normal and what needs to be treated (Jutel 2011, p. 182). Once delivered, it legitimizes an illness and gives access to medical resources and the social role of sickness, that is, permission to be ill (Parsons, 1951, p. 452). More importantly, it is the diagnosis that confers authority to the doctor and distinguishes the medical profession from other systems of medicine (Freidson 1988, p. 12).

There are various factors like social, economic, and political ones that inform diagnosis. It is the constitutive power of clinical gaze which introduces the change in the understanding of the diagnosis and is the reason why gaze is given privilege over the words. In the words of John Berger (2008), the act of seeing deciphers and brings within reach the thing that is being looked at from a distance. It is the sovereign, empirical gaze that turns the solidity, density, and opacity of things into light while slowly passing over and into the things (Foucault, 1975, p. xiii). Nonetheless, as Berger (2008) puts it succinctly that an image is the embodiment of a way of seeing. Similarly, diagnosis as a category and a process is an "informed gazing" to find out what is ailing a patient.

Thus, the gaze has the character to discover the hidden truth. Though gaze composes and decomposes the medical understanding as it observes new modalities to seek the truth, it is the composition or configuration of disease that becomes its truth. The diagnosis, which is the outcome of this intimate relationship between seeing and saying, could offer analytical understanding into this changing relationship across the historical journey of medicine. It is argued here that as the concepts associated with the dominant paradigm are replaced owing to the gaze, the notions of disease are consequently configured on the new relationship established. In Klawiter's formulation, disease regimes, which are historical, cultural, and spatial practices associated with diagnosis and beyond traditional practices and individual physiology, underscore this co-constructed relationship (Klawiter, 2004, p. 32). Therefore, diagnosis as a way of knowing could provide analytical insights into the history of diagnostic categories evolved with the emerging concepts in life sciences and practices in medicine.

Concepts in the history of Life sciences and relation with medicine

Since the 17th century, the primary concern of life sciences was classification to understand the essence of life. Be it the search for humors or forces of nature that animate the heterogeneity of life, classification is primarily based on understanding essences. Similarly, metaphysics informed the conceptual framework of prescientific understanding, such as disease as a curse of God and so on, depicting the divine essence. Later, the concern was reoriented to functions as it emphasized that understanding the aggregate effect, which could be life itself, was to understand the essence that ran through life.

At this point, physiology emerged as the mode of knowing organic functions through observation and experiment. It was asserted that laws and change underlined the perpetual transformation of things and became the explanation and attention of physiology. For Coleman (1971), physiology was synonymous with biology in the 19th century (Coleman and Coleman, 1971, p. 12). One group of biologists-anatomists, histologists, and embryologists asserted the importance of form, while the second group of biologists emphasized the vital processes that sustain organic functions. The third group of biologists in the 19th century was evolutionists, whose concern was to understand the relationship between past and present. They wanted to define the mechanisms which controlled the transformation of organisms.

Thus, form, function, and transformation as concepts offer a unique vantage point to understand the developments in biology and medicine, which has, since the 19th century, been mainly shifting towards life sciences (Coleman and Coleman, 1971, p. 15). This shift from abstract essence to the reduction of life and organisms to particular patterns of matter has been critical. The revolt from the morphology at the turn of the century realigned medical and life sciences, and laboratory science became a significant source of explanation. However, the renewed form of vitalism remained the defining principle. Functional doctrine believed in search of the active state of life, that is, to determine and control the ceaseless flux underlying the purpose of life (Coleman and Coleman, 1971, p. 21). In the late 17th and early 18th centuries, human anatomists emphasized the description and investigation of organs and systems of organs. Therefore, corporeal investigation of the body has constituted the body as integrated activities of organs, and it is these organs that are the physical basis of bodily functions. It was informed by the teleological understanding as each organ was designated a necessary function. The organ system doctrine concerned with normal functioning could not explain a query that if organs that manifest similar traits, whether in health or disease, must share the same universal physical and functional bases. Further, a systematic study of a pathological form also necessitated a shift from the organ level understanding and, in turn, revolutionized the anatomy.

By combining the physical examination of a corpse (dissection) with the clinical description of a patient's ailment, symptoms were given an accurate anatomical reference. It was this moment of superimposition that gave pathology a physical localization and physiology. Tissue as a fundamental structure was a site to understand properties of life, as Xavier Bichat (1800, cited in Coleman and Coleman, 1971, p. 25) explained and became a unit of anatomy. He identified twenty-one tissues with distinctive vital properties (Coleman and Coleman, 1971, p. 25). It was the tissue doctrine that explained normal and pathological were analogous phenomena to which organ doctrine could not account.

Anatomy and physiology merged, and physical localization of the pathological or

pathologies became the norm of clinical description. The dual ontology of health and disease faded into the quantitative variation of physiology. After the mid-18th century, cell theory, in response to getting rid of vitalistic tendencies and metaphysical excesses, replaced both doctrines and established the cell as the site of metabolism with physiological capacities (Coleman and Coleman, 1971, p. 28). It revolutionized anatomy and medicine thoroughly as the cell became the foundation of large organic structures and the origin of essential functions necessary to life. Thus, the shift from metaphysical to the corporeal understanding of health and disease emerged as the plane of the diagnosis configured around the concepts of life sciences begin to evolve.

With the advent of the microscope and bacteriology discipline, the cell theory gradually transformed the structural view of an organism to the functional interpretation of those structures. The Discovery of sub-cellular structures and the notion of inheritance further consolidated the cell theory doctrine, and correlatively, physiology advanced from the examination of general metabolic activity of the whole organism to that of vital elements of the cell (Coleman and Coleman, 1971, p. 30).

Thus, the cell, like organ and tissue earlier, became a new anatomical element. Virchow argued that the cell theory was critical to the development of pathological anatomy because localized anatomical disturbances became the seat of disease instead of the general processes (Coleman and Coleman, 1971 p. 32). Health and disease became quantitative variations of each other rather than two different states. Physiological became synonymous with normal and pathology, with their physiology manifested in the form of disturbed functional response at the tissue level (Coleman and Coleman, 1971, p. 80).

However, demonstration of the cell as the critical anatomo-physiological unit remained an outstanding challenge. To this exception, the experiments provided the means as Foucault says, logically, observation is followed by the experiment (Foucault, 1975, p. 108). Health and disease as just quantitative variations were further elaborated with the invention of the steam engine, the discovery of the current, the chemical composition of organic substances, the scientific study of agriculture and soils, and the genesis of biochemistry. These branches of science made it possible that bodily processes could be reduced to physical and chemical components (Coleman and Coleman, 1971, p. 119). The search for physicochemical equations that were fundamental to the functioning of the body became paramount. By the nineteenth century, physiology established the mechanical character of health and disease founded on physicochemical laws, another addition to the physiological method. At this juncture in time, one could see the emergence of the experiment as the distinctive mode of knowledge and physicochemical instruments in the skilled hands to access the marvellous density of the body.

Clinical Gaze as the Foundation of diagnosis in Biomedicine

To search for the conditions enabling the modern practitioner to see what an eighteenth-century doctor could not see, we have noticed that Foucault's (1975) birth of the clinic offers an informative perspective on the act of seeing, the gaze. For Foucault, clinical gaze traces disease as an embodiment of symptoms of the patient that need to be observed, unlike the mid-18th century, where symptoms were treated as a mode of knowledge to decipher the essence of disease. This minute but decisive change must be identified with the reorganizations in the depth of the relationship between seeing and saying.

In order to understand the conditions of possibility of medical practices in modern

times, one could invoke Stacey's (2013) metaphorical understanding of disease where metaphor is not just a play of words, but the metaphors we live by; that is, the human thought process is saturated and defined by metaphors. Stacey (2013) argues that two metaphors-visual and spatial, are at the center of the construction and the emergence of contemporary biomedical discourse. These two metaphors and their relationship are fundamental to the way clinical gaze has historically conceptualized the human body in biomedicine (Stacey, 2013, p. 51).

The transition from classical to clinical understanding saw reinterpretation in the spatial configuration that generated new conceptualizations of disease. The classification of diseases was the purpose of medicine that guided the gaze of the 18th-century doctor. The nosologies ruled the practice of medicine and had assumed absolute authority that would see nosologies unravelling on the patient's body. The body (localization) of a diseased person was secondary to it. The fundamental purpose was to find resemblances, envelopments, and subordination between afflictions (Foucault, 1975, p. 5). It was the time when botanical principles ruled medicine, and morphology defined living organisms and associated phenomena.

However, at the end of the 18th century, a new relationship was established between words and things; that is, the clinical gaze became the speaking gaze (Foucault, 1975, p. x). This relationship essential to all knowledge changed the structure of knowledge itself and put forth a new way of seeing and saying (Foucault, 1975, p. xiii). The transition gave an individual the status of an object, and its knowledge was constructed on its particular quantities and qualities, etc., instead of on some aesthetic or historical order.

The clinical gaze thus changed the substance of medicine, not just its form. It consequently shaped the practitioner's experience and produced the new formulation of perceptible and statable, new geometry of space, new composition and dimensions of organs and tissues unlike binary of functional and non-functional part of the organ. It produced reorganization of the constituents of the pathology and welded disease on the organism rather than framed as the duality of disease and health (Foucault, 1975, p. xviii). Barry (1994) attributed the changes in medical perception to the fundamental structures of experience that changed at the turn of the 18th century and not as an outcome of some mixture of knowledge and graceful touch or glance. To understand the contemporary notion of health and disease, the historical evolution of clinical science offers an understanding of concrete conditions that made possible new emerging experiences of them.

Every discourse of pathology lays down the lexicology to have a configuration of diseases like classical models, which speak of sympathies, correspondence, and homologies. The anatomo-clinical understanding of pathology is a recent phenomenon, precisely the 19th century, where the body of disease is superimposed on the body of a sick man. Foucault (1975) sees this medical experience where "the space of configuration of disease" imposed on the "space of localization of illness" as the mark of suzerainty of gaze that reads the symptoms on the anatomical masses (Foucault, 1975, p. 6).

Foucault (1975) sees a dynamic evolution in the spatial configurations of disease not in the sense of improvement over the previous but as the succession of reorganizations that define the experience. In classical medicine, the space of configuration of illness was freer of localization, unlike in clinical medicine that strictly adhered to the space of localization. The anatomy is essential to clinical gaze.

The classificatory configuration of disease was dominated by the botanical principle,

where diseases were organized and hierarchized into families and species (Foucault, 1975, p. 7). It was the analogy that defined the essence of diseases. In classificatory medicine, the concern was to draw a coherent picture of symptoms to reach the diagnosis. Thus, the first structure that classificatory medicine provided was tables and pictures (Foucault, 1975, p. 6). Bishop (2011) calls this period of medicine the medicine of forms and essences. The pictures and tables of disease became a guiding principle, achieved some divine power (quasi-religious), allowing the doctor to see symptoms on the body. Thus, the philosophy of disease had a principle of botany as spirit, where if a disease on the surface of the body shares similar symptoms and signs with the group of diseases, then it would belong to the same group (Foucault, 1975, p. 4). In classificatory medicine, anatomy was not essential to understanding the disease as it can move across the body without a change in its nature. The same disease can cause different signs as it moves. Thus, the space of disease and space of the body was flexible enough to account for such a multitude. The nosologies that represent the essence of disease and objective source of knowledge guided the diagnosis in the 18th century. Nosologies also represents the collective gaze as the medical experiences around the world started to collaborate. The space of configuration of disease in classificatory medicine, where diseases are hierarchized because of relationships by homologies, subordination, and envelopments, etc., treats localization as a subsidiary or individual having no positive role. It defined the configuration in terms of vertical, horizontal, and deep spaces that intersect to articulate the disease as embodied (Foucault, 1975, p. 10).

For classificatory medicine, it was the search of qualities of disease laid down in an organ that mattered most and turned away from the mathematical form of knowledge. The organs do support disease but never constitute its necessary conditions. It led to the formation of nosologies-pictures and tables, doctor's diagnostic guide.

Classificatory medicine tried to free the gaze of the disturbances that the body erects to it in its endeavour to decipher the essence of disease. The knowledge of the body is relevant only to subtract it, but the knowledge of nosology, the doctor's compass, would establish the success of the treatment. Thus, diagnosis is at once both a process and a category; that is, search for the essence of disease (category) incidental to the body. So, classificatory medicine levelled off the perspectives to produce the homogenous space where cause and effect have the same position and have no reciprocal relations but "perceptual simultaneity" (Foucault, 1975, p. 6).

Classificatory gaze did not offer the perspective but notion of essential disease, as it was constrained by the abstract figures delimiting an experience beyond the surface division, essences, and similarities. Diseases were configured on the botanical principle, where the analogy of forms produced essences and subsequently enabled the doctor to communicate and organize the diseases in the real world (Foucault, 1975, p. 7). In classical medicine, patient and doctor obscure or denature the essence of disease, so the doctor must subtract the patient to know the truth of the pathological fact because a patient is just an externality to the essence of disease and doctor himself.

Classical medicine relied on the knowledge of the nosologies that guide the doctor's gaze towards deciphering the nosological picture on the body rather than the patient's suffering as the starting point. The classificatory thought had a belief that disease is not counter-nature. Diseases follow the laws of life, but its patient and doctor are disturbances in the rational discourse of disease as they obscure their true nature. Thus, the role

of medicine is to neutralize them to reveal the essence of disease (Foucault, 1975, p. 8).

A doctor must stick to the nosological knowledge to extract the essence of disease. Otherwise, the therapeutic indiscretion could obscure the essence of disease that ought to be keenly observed. The essence of disease lies in the nosological order. Therefore, the classificatory gaze was caught in the enduring reciprocity, effacing its conditions of possibility and visualized the two-dimensional picture which was both an origin (made possible the rational discourse of medical knowledge) and end as it was towards that essence the gaze had to proceed through the body of patient and doctor.

Foucault (1975) described the classificatory gaze as retrieving to give itself an essence, and the gaze had to let the disease win and reveal its truth (Foucault, 1975, p. 14). However, classificatory medicine could not resolve the question of variation to essence reflected by different organs afflicted with the pathologies. This concern shifted the focus from the essence of pathology in whole to the parts that also reflected that essential nature. It brought back a renewed attention to an individual and less attention to the essences. Foucault called this secondary spatialisation of pathology (Foucault, 1975, p. 15). It required close attention to the patient's subjective interpretations and sufferings. It started unceasing attention to know the individual in its all qualities and densities. Thus, the birth of qualitative gaze where the subtle perception of the qualities distinguished one case from the other and required whole new hermeneutics of the pathological fact based on measuring variations, the defects, excesses, etc. The medical gaze sensitive to fine qualities explained the modulations and specific qualities called the "particular histories" of an illness (Foucault, 1975, p. 16). The space of an individual where these variations appeared brought back the positive character of the individual rather than to be subtracted or seen as external to the essence.

Again, the gaze was freed of the collective medical structures, collective seeing, and more so of the hospital experience and turned the focus of medicine on the qualitative depths of the individual (Foucault, 1975, p. 16). As the space of disease and space of the body merged, the search for localization of disease advanced from the organ system to the tissue and, finally, the cell in the 19th century. The medicine of diseases, no longer essence or essential diseases, faded into the medicine of pathology, setting the possibility of the modern clinical gaze. The doctor-patient relationship took a new turn where an individual, in all its passivity and silence, represents the network of qualities that reveal the order of disease open to the more attentive and penetrating medical gaze.

However, the disease is not only related to the organic body and pathogen but has to do with social space too. Foucault (1975) sees tertiary spatialization as expansion into a space constituent of society and its relation to disease. The disease is here located on the geography, invested upon, and, more importantly, managed. Tertiary here implies the complexity and collective response of society as disease forces to formulate the ways to protect, simultaneously exclude others, and form associations, etc. In simple terms, tertiary spatialization belongs to the political and social space that can allow or overturn the medical experience and formulates new dimensions and new foundations for itself (Foucault, 1975, p. 16). This shift away from the body to the social space, partly due to the emergence of disciplines of epidemiology and public health, incorporating distal factors like environment, geography, and social attributes in the conceptual frame of disease and health. Thus, the tertiary configuration reflects the interplay of sickness, medicine, and society.

The pathological anatomy constructed an organic body as a body with organs. Subsequently, the medicine of organs emerged, reconfigured disease on the physiological traits proper to each organ, and reorganization of medical experience began to appear. The clinically organized body again took a significant turn with the invention of tools and technologies like stethoscopes and X-rays as the technology remoulded medical perception greatly and reorganized corporeality, and enabled accession to the opaque body. The historical body undergoes, thus, constant spatialization through the new technologies (Scott, 2010, pp. 46-50). Similarly, Jewson (1976) argued that the emergence of the laboratory added another dimension to the clinical investigation and called it laboratory medicine. However, it did not challenge the clinical practice as it only added technology to understand the underlying spatialization of illness, diagnosis (Armstrong, 1995, p. 395).

To understand diagnosis, one needs to understand the concept of the disease entity. The disease entity as an important theoretical concept has its roots linked to how the ideas in intellectual space configured or trickled into medical thought, shaping the science of pathology. Broadly, one could conjure up the ontological, physiological, and molecular conception of the disease entity. Alternative medicine, like Egyptian medicine, had an ontological notion of disease, where disease entered and left the body. Similarly, the germ theory of disease comes closer to ontological representation as one could see the sick man. The Greek medicine premised on the theory of vitalism replacing ontological one with a dynamic notion of disease and found the notion of health and disease on the equilibrium of humors. In this system of thought, the disease was not something disequilibrium but a process to set new equilibrium to maintain harmony and to bring about healing as whole nature with and without man being in harmony and equilibrium (Canguilhem, 1991, p. 30).

Virchow introduced a shift as he distinguished between disease entity in itself and the cause of disease. He assumed that disease was not the suffering of the whole organism but the pathology of cells. Hence, the field of cellular pathology was constituted against the Germ theory, where it was the foreign invasion that caused disease (Canguilhem, 1991, p. 32). The medicine shifted its endeavour of therapeutics into pathological anatomy and cellular structures. It was the time when medicine was shifting away from the nosological system of diagnosis and medical perception finding its way into the pathological morphology and pathological physiology (Hucklenbroich, 2014, p. 13).

Consequently, the body reappeared as the embodiment of molecules and their relationships, what one can call the emergence of molecular gaze. The molecular gaze transformed the body into the living text, a language of codes that would possess information. Therefore, life processes at the molecular level-gene and DNA possessed the code to script life. The conceptualization of the body from morphological to molecular discourse developed into an information-based notion of health and disease. Genes, as master molecules, established the assumption that living organisms could be better understood by decoding the information. Molecular gaze assumed that we are but the chain of nucleic acids, and to understand the language of the body; one needs to listen to how the gene speaks to the cell (Anker and Nelkin, 2004, p. 20). As the molecular approach became the center of explanation around the mid-60s, Clarke (2003, cited in Hogan, 2016, p. 208) and Rose (1993, cited in Hogan, 2016, p. 208) saw in the birth of what they called the molecular gaze the reorganization of clinical medicine while some others, like Haraway (1995, cited in Hogan, 2016, p. 208), proposed the death of clinical gaze. Perhaps, one

could say that the molecular gaze, new thought, and way of seeing reorganized and stated the clinical truth in a new way to eliminate the error.

The molecular discourse reinvented the body on the molecular characteristics and diagnosis premised, subsequently, on specific biomarkers (Hogan, 2016, p. 209). Hogan (2016) argued that "genomic gaze" incorporated both clinical knowledge and molecular gaze for diagnosis and prevention of disease rather than the epistemic shift affirming the nature of revisionist nature of gaze where the error, not being eliminated by the muffled force of truth, gradually surfacing out of shadows but by a new way of speaking. The diagnosis, as a process of decoding in classical medicine, searching for abstract nosology in sick bodies, to the molecular medicine affirmed the essence of metaphors to medicine as Kleinman (1992) considered diagnosis as thoroughly a semiotic activity.

With the invention of technologies, like X-ray, the internal and private spaces, no longer internal, allowed a kind of dissection of the living body or like the windows into the interior depths exposing what the body would conceal. The development of technology reconceptualized the notion of the body. With information technology, the body became body electric and with ultra-sound and genetics, etc., the digital body (Gilbert, 2008, p. 27).

Interestingly, Van Dijk (1998, cited in Gilbert, 2008, p. 27-30) argued that genetics introduced the radical shift as information remained not only a metaphor but materially inscribed information realizing that binary language would inhabit the physical world. The body, just a collection of information, brought the decomposition of the subject, and living being ceased to exist but as dead matter. Thus, genetics marked the shift from mechanics to information and communication theory of body, reflecting the change of scale, adopted a new dogma-code. Parker (1997, cited in Gilbert, 2008, p. 34) held in this decimation of the body the emergence of postmodern medicine where the body would be just a metaphor that could be deciphered using the new technologies, unlike modern medicine where the body exhibited the solid mechanics that visualized the body as machines.

Conclusion

As medicine took an ontological turn in the late 18th century, apparently the first time since Hippocratic times that doctors agreed to look at things of their experience objectively and the free gaze of all chimaeras and imaginations. However, what was changed effectively at the clinical moment were not some psychological or epistemological endeavours but forms of visibility. A particular way of knowing the patient emerged, and clinical experience became a form of knowledge. It was a time when a new relationship between language and observation was established, enabling one to see and speak. That was the emergence of an anatomo-clinical method that gaze offered to establish medicine as a positive science. Disease broke away from metaphysical explanations and became embodied in the living bodies of an individual. It altered the doctor-patient relationship and laid the possibility of man as an object of knowledge. The advancement in medical technologies reorganized both the space and configuration of disease. It was the time when the new use of scientific discourse emerged, and the constitution of pathological anatomy was shaped. The new concepts like a cell, tissue, etc., restated the truth of body and disease. However, as the site of explanation changed, reductionism and mechanical understanding became the dominant mode of understanding disease and health. The role of statistics and the emergence of different life sciences form an important dimension

to look at shifts in medicine, which remained unaddressed apart from the critical stand against the notion of concept offering another strand of knowing.

Conflict of Interest

None.

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