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Short Communication

A Brief Note on Medical Imaging

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ABSTRACT

Medical imaging is now an important part of the entire health-care process, from prevention and screening through early detection, treatment selection, and follow-up. In all subspecialties, patient triage in acute care and chronic disease, imaging-guided therapies, and treatment planning optimization are now common clinical practice. This paper presents a brief overview of notable milestones in medical imaging from its creation to the present, as well as some thoughts on the field's future directions.

Keywords: Diagnosis; Medical imaging; Theranostics

DESCRIPTION

The technique and process of imaging the interior of a body for clinical examination and medical intervention, as well as visual representation of the function of particular organs or tissues, is referred to as medical imaging (physiology). Medical imaging aims to expose hidden interior structures beneath the skin and bones, as well as diagnose and cure disease. Medical imaging also creates a database of normal anatomy and physiology, allowing abnormalities to be detected. Although medical imaging of excised organs and tissues is possible, such operations are normally classified as pathology rather than medical imaging [1].

It includes radiology, which employs imaging technologies such as X-ray radiography, magnetic resonance imaging, ultrasound, endoscopy, elastography, tactile imaging, thermography, and medical photography, as well as nuclear medicine functional imaging techniques such as Positron Emission Tomography (PET) and single-photon emission computed tomography [2].

Medical imaging is commonly thought to refer to a collection of noninvasive procedures for creating images of the body's internal structures. Medical imaging can be thought of as the solution of mathematical inverse problems in this limited sense. This suggests that effect infers cause (the qualities of living tissue) (the observed signal). The probe in medical ultrasound is made up of ultrasonic pressure waves and echoes that go into the tissue and reveal the internal structure. The probe in projection radiography employs X-ray radiation, which is absorbed at different rates by various tissue types such as bone and muscle [3].

Other technologies that produce data susceptible to representation as a parameter graph versus time or maps that contain data about the measurement locations include Electroencephalography (EEG), Magneto Encephalo Graphy (MEG), Electrocardiography (ECG), and others that are not primarily designed to produce images. These technologies can be considered forms of medical imaging in another discipline in a limited comparison.

In 2006, medical imaging exposure accounted for almost half of all ionizing radiation exposure in the United States. CMOS integrated circuit chips, power semiconductor devices, sensors such as image sensors (particularly CMOS sensors) and biosensors, and processors such as microcontrollers, microprocessors, digital signal processors, media processors, and system-on-chip devices are all used in the manufacture of medical imaging equipment [4].

Non-physicians are increasingly performing interpretation; for example, radiographers frequently receive training in interpretation as part of their expanding practice. The technological aspects of medical imaging, particularly the acquisition of medical pictures, are referred to as diagnostic radiography. The radiographer (also known as a radiologic technician) is in charge of obtaining diagnostic-quality medical images; while other professions may be trained in this area, some radiological procedures performed by radiologists are done without a radiographer.

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One of the most significant medical breakthroughs in human history is computed tomography. Soft tissue contrasted with anatomic detail is displayed in images, allowing for remarkable diagnostic precision. The pictures are two-dimensional cross-sectional images that can be assembled in space to form a volume. More than three million CT scans had been conducted by the early 1980s. That number has since risen to well over 100 million CT scans every year, making CT the modern doctor's "truth machine."

CT has made any technological advancement, with faster scan times, thinner slices, lower radiation doses, and higher image quality [5]. A typical CT study may take dozens of minutes twenty-five years ago, depending on the scanned volume and equipment, whereas today's CT scans can be completed in a fraction of a second, covering enormous portions of the body and even employing multiple scan energies. CT slices can be as thin as fractions of a millimeter with contemporary scanners. Radiation doses have been reduced by more than half thanks to new image reconstruction techniques and more efficient, bigger detector materials, all while picture quality has improved.

CONCLUSION

Medical imaging has taken center stage of medical diagnosis, thanks to advancements in picture acquisition, interpretation, transfer, and storage. In most fields, patient triage, treatment planning and optimization, and real-time image-guided interventions are already common clinical practice. We have covered medical imaging from its inception to the present day in this study. The obstacles, as well as the exciting new prospects, point to a bright future. Medical imaging advances will change mass medicine into precision medicine with tailored care.

REFERENCES

1. Mould RF. The early history of X-ray diagnosis with emphasis on the contributions of physics 1895–1915. Phys Med Biol. 1995;40(11): 1741–1787.
2. Wilms G, Baert AL. The history of angiography. J Belge Radiol. 1995;78(5):299–302.
3. Willemink MJ, Takx RAP, de Jong PA. Computed tomography radiation dose reduction. J Comput Assist Tomogr. 2014;38(6):815–823.
4. Nogueira RG, Jadhav AP, Haussen DC. Thrombectomy 6 to 24 hours after stroke with a mismatch between deficit and infarct. N Engl J Med. 2018;378(1):11–21.
5. Halpern EJ. Triple-rule-out CT Angiography for evaluation of acute chest pain and possible acute coronary syndrome. Radiology. 2009;252(2):332–45.