



Evaluation of activities of pathological anatomy laboratory in a developing country: experience of the University Teaching Hospital of Lomé, Togo.

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Abstract

Background: The Laboratory of Pathology (LAP) of the Tokoin teaching hospital of Lomé, like most pathology laboratories in developing countries, experiences many problems. The aim of this study was to identify problems that under the optimal functioning of the laboratory, to propose solutions to improve the performance of this structure.

Methods: A retrospective study of sample results which were analyzed in the pathology laboratory of the Tokoin Teaching Hospital of Lomé on 5 years (2010-2014) was performed, followed by a field observation and a staff survey.

Results: It appears that the LAP must be equipped in equipment and reagents, and technical organization and implement a self-assessment program and equipment maintenance must be improved. The LAP also experienced lack of qualified personnel. The most frequently diagnosed disease were benign mastopathies (15.8%) followed by leiomyomas (14.2%) and gastritis (9.3%).

Conclusion: Despite the limitations of our study, it had the merit of highlighting problems at every level of challenging work system. The medical staff and other administrative authorities are indexed for a better service delivery to patients.

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Introduction

Around the world, there is a constant concern to improve the quality of care of patients [1]. This constant concern for human well-being is closely correlated with technological advances that have skyrocketed.

In this context, Pathological Anatomy laboratories play an important role in the quality of care because they allow establishing more accurate diagnoses and therefore better management of sick [2]. In developing countries, it is not uncommon that these laboratories are experiencing resource problems but also organizational problems [3,4]. The LAP of the Teaching Hospital of Tokoin (Lomé) not immune to these problems. This is the only laboratory in Togo; it should have more assets necessary for its operation, but this is unfortunately not the case. Our work is based on the assumption that the operation of this laboratory can be greatly improved through better involvement of policy makers and to a better organization.

Materials and Methods

We retrospectively analyzed data from the pathology laboratory of the Tokoin Teaching Hospital of Lomé between 2010 and 2014. We conducted a field observation for a year and a survey of laboratory staff. All registers with the sample results were analyzed. These samples came from teaching hospitals, private clinics and other health facilities within the country. Statistical processing and analysis of data was performed using SPSS software.

The study was conducted according to ethical rules in Togo.

Result

The structures and activities of the Laboratory

The Pathological Anatomy Laboratory of the Tokoin Teaching Hospital of Lomé is located on the first floor of the building housing the ground floor of the morgue at the Tokoin Teaching Hospital of Lomé. It has a recording room, a Grossing and parts storage room technique, a secretariat and offices. The activity of the Laboratory consists of macroscopic examination, histological, cytological, histochemical and rarely extemporaneous examination. The received samples consist of smears, biopsies, surgical specimens and autopsy rooms. These samples are collected in the recording room which is also used for archiving. The different steps of Laboratory routine histopathological techniques include fixation, macroscopic description, inclusion, cutting and spreading, coloring, editing and playback. The result is then sent to the requesting department after three weeks to one month. We identified a total of 12125 samples with 8320 biopsies, 2401 surgical specimens, 1368 smears, and 36 autopsy rooms. Smears were made up of 508 cervico-vaginal smears, 246 liquid of bronchial aspiration, 212 pleural fluids, 208 breast liquids, 194 ascites fluids and joint fluids. Thirteen smears were also sent to search for the sex chromatin, 7 cases were male and 6 were female. Tables I and II show the distribution of samples according to the type of pathology and the

ten first diagnosed pathologies. The beneficiaries of our services are the health facilities in the capital consist at the Tokoin Teaching Hospital (8016 cases, 66.1%), the Campus Teaching Hospital (1300 cases, 10.8%), private clinics (2345 cases, 19.3%) and other health facilities inside (464 cases, 3.8%).

Table I: Distribution of samples according to the type of pathology

Type of pathology	Number of Cases	Percentage (%)
Non-specific inflammation	3748	30.9
Specific inflammation	1512	12.5
Benign tumors	3608	29.7
Malignant Tumors	2133	17.6
Pathology non-tumors and non inflammatory	906	7.5
Ininterpretable samples	218	1.8
Total	12125	100

Table II: Distribution of lesions according to the first nine pathologies

Type of pathology	Number of Cases	Percentage (%)
Benign breast disease	1824	15.8
Benign tumors of the uterus	1730	14.2
Gastritis	1139	9.3
Non-tumors dermatosis	1005	8.2
Benign prostate	926	7.6
Malignant breast tumors	912	7.5
Malignant skin tumors	809	6.7
Pregnancy arrested	689	5.7
Appendicitis	672	5.5

Human Resources and stains.

The LAP has three pathologists' doctors, including a Full Professor who is the head of department and two assistants. The remaining staff consists of two senior engineers, two secretaries and a surface technician. The head department is responsible for the administrative management of medical staff, equipment, consumables and reagents, as well as the tasks service delegated in part to the laboratory supervisor. Apart from this administrative task, he took part with physicians in the diagnosis, training of hospital students, the continuous training of technical personnel, research and forensic. Senior Laboratory Technicians main task the preparation of slides for the histological diagnosis and cytopathology. The Secretaries are responsible for the layout of the results after reading the slides. The surface technician takes care of the cleanliness of the Laboratory.

Material resources

The LAP has a varied range of appliances and equipment enabling it to meet the demand: an inclusion-type samples moved Histokinette 2000 PLC, a paraffin heater very small pot, refrigerator designed for blocks paraffin microtome bench two of which failed for cutting paraf-

fin blocks, three microscopes for reading slides, two drying ovens, one is not functional, a cryostat for extemporaneous examinations, a water Universal married, filing for blades, test tubes, scales in poor condition, a tape measure.

Discussion

The structures and activities of the Laboratory

The location of the LAP of the Teaching Hospital Tokoin near the morgue is appropriate, since this position should enable it to properly make one of the main activities of a LAP. This activity is to perform forensic autopsies scientists and especially for the purpose of clinical and epidemiological research to improve the quality of care.

The LAP complies with the code of practice, design and development laboratory for levels 1 and 2 of laboratory biosafety of the World Health Organization [4]. However, analysis shows rooms Grossing room and storage rooms relatively small considering the number of samples that should arrive and be stored there. Indeed many samples are stored without order, which does not allow more space for other activities such as registration. Lack of maintenance and order in work rooms does not give a good appearance or good organization of activities including teaching students. Staff awareness with appointment of a responsible to supervise and order maintenance in the lab, each object to be stored strictly in its place could improve cleanliness. The request for a second surface technician is addressed to the management of the University Hospital.

Cytological and histological technique room which is also used for the storage blades and paraffin blocks is certainly wider, but does not have air conditioning, making difficult the work period of heat and especially the preservation of paraffin blocks. The Tokoin Teaching Hospital is the center that sent the largest number of samples. This is explained by the fact that it is a referral hospital in Togo and is also the site of implantation of the LAP. The significant number of uninterruptable samples arriving at the laboratory of health facilities especially coming from inside the country should call the authorities to install a second laboratory inside the country for a better coverage of needs.

Human resources and tasks

Treating a sample sent to the LAP would normally result after 72 hours to a week any more, but this is not the case the LAP Tokoin; it takes 1 month to get the result of a levy, and this fact could be a handicap in the administration of proper treatment at the right time [1,2].

A number of unfavorable factors have been identified; the poor state of equipment, lack of trained staff, the wait a high number of samples before starting the treatment system. The lack of staff resources is explained by the absence of training policy in this medical field and the fact that doctors who specialize in this area are reluctant to return home once their training is completed, for reasons of bad conditions work and pay. Necropsies normally constitute a major LAP activities, since it is the

best means available to study with a disease process and to better understand the exact nature of one disease [5,6]. They should primarily serve to teach doctors and control the quality of care. However, scientists have never performed necropsies at LAP of the Teaching Hospital Tokoin. Besides, after necrotic verification, it appears that only 55% of clinical diagnoses were accurate and complete [6]. In view of the above, it appears necessary that the practice of systematic scientific necropsies enters the habits of physicians because it is time for the people to know what she died to take charge and change if possible habits.

Material resources

Most LAP appliances and equipment are not in good condition. Since the creation of the laboratory these devices have not been replaced. Some of them (oven, microtome) are no longer functional, and others (the balance is even rusty), leading to bad working conditions and a delay in processing samples. The techniques used in the LAP are those of conventional histology. The LAP has no electron microscopy techniques which are long and costly hardware and time. This is not a real handicap [7]. But the absence of special reagents and equipment for the realization of immunohistochemical techniques is a real handicap, since immunohistochemistry ranks first major technical advances in the practice of anatomy and pathological cytology [8, 9, 10]. Finally, the lack of practice of molecular biology techniques and cytogenetic is an obstacle to the future development of the LAP [11]. The reasons cited are related to economic conditions that knows most developing countries and the lack of funding source [12].

Conclusion

Assess and analyze the work of the LAP Teaching Hospital Tokoin system may seem audacious, given the multiple problems faced by laboratories in developing countries. Despite the limitations of our study, it helps to identify the main problems, in particular, the long duration of sample processing, lack of qualified staff, poor equipment, lack of realization of scientific autopsies and the problem of accessibility of health facilities located within the country.

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Competing Interests

None declared.

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