AVOIDABLE DEATH IN FORENSIC CASUISTRY. CASE REPORT

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Abstract: *Population health multideterminism (hereditary, individual, environmental, cultural, socio-economic factors etc.) makes it difficult to quantify it. One of the indicators assessing health is mortality caused by treatable diseases that can be prevented by medical intervention or secondary prevention. We present the case of a nursing mother on day 7, 23 years old, who, after giving birth spontaneously, assisted obstetrically, to a live, eutrophic fetus had a postpartum evolution apparently favourable discharged on request. Subsequently, two days after discharge, she returns to the Emergency Room (ER) with deeply impaired general condition with symptoms of septic shock. The diagnosis of pelvic-peritonitis with severe toxic-septic condition was set. Although surgery was on emergency (total hysterectomy with bilateral ovariectomy), the patient died intraoperatively. Forensic autopsy revealed an aspect suggestive of a long evolution of a septic pelvic-peritoneal process with multisystem organ failure (MSOF), confirmed by complementary examinations performed (bacteriological examination and histopathology). Data provided by caregivers revealed the existence of an old chronic suffering, which although diagnosed during hospitalization, was ignored by the patient, who has not observed the medical advice. Through the lack of therapeutic compliance, this case falls into the category of avoidable deaths occurring in younger people, whose forensic autopsy is required.*

INTRODUCTION

Population health multideterminism (hereditary, individual, environmental, cultural, socio-economic factors etc.) makes it difficult to quantify it. The evaluation criteria of health are usually based on assessments performed by family physicians or those in the ambulatory, and on the results of some medical facilities.(1,2) One of the health assessment indicators introduced recently is that of "avoidable death", which represents mortality from treatable diseases that can be prevented by medical intervention or secondary prevention. Therefore, the basic concept of avoidable mortality is that deaths from certain conditions for which effective public health interventions are available, should be rare or, ideally, should not occur.

The main goal in the study of this entity is to detect areas with high mortality and, especially, to identify the risk factors and the socio-economic climatic conditions that favour their appearance, in order to establish and implement prophylactic and curative measures. Despite an increased interest and some significant efforts in order to elucidate this issue, there is still no consensus in precisely defining the avoidable mortality.(3,4,5,6) One of the main issues is to select the causes of death that may be included in this category. World Health Organization experts included in the lists of avoidable deaths those that could have not been produced either due to primary prevention, or as a result of secondary prevention.

CASE REPORT

We chose to present the case of a woman aged 23, who died on the seventh day postpartum. From the data provided by the criminal investigation authorities, we find out that the so-called, R.L.M., died in hospital during an emergency surgical procedure, about one week after a normal live birth. For a complete documentation prior to autopsy, there were requested medical records of the above-named of which, the following significant data were recorded:

In the pregnancy booklet prepared by the family doctor, two checkups were recorded as follows: week 31 - abdominal pain, hypertension = 110/80 mmHg, recommendations for avoiding physical exercise, medication and re-evaluation; week 34 - no complaints, normal clinical data, the same recommendations.

The first general clinical observation sheet highlights: causes for hospitalization: disseminated uterine contractions, loss of amniotic fluid; herodo-collateral history - insignificant; pathological personal history - insignificant; obstetric history – menstrual period by the age of 13, regular; II G II P; history of the disease – 9 months pregnant, labour debut at home (about 2 hours); clinical examination at admission - good general condition, blood pressure (BP) = 100/60 mmHg, increased abdominal size, no other changes were observed; pelvic examination - single fetus (heartbeat = 140 b / min.), broken membranes, fully dilated cervix, baby head lowered to the pelvic-anal floor.

On admission, the following diagnosis was set: II G II P; 9 months pregnancy, live fetus; expulsion. The patient born spontaneously in totally assisted delivery, a live fetus, eutrophic, female, APGAR score 10; the birth resulted in vaginal and perineal tear which were sutured intraoperatively. Initially, postpartum evolution was favourable, with normal aspect of the perineal wound, lochia of normal aspect, urinary and bowel present.

Subsequently, on day 3 postpartum, the patient showed discrete general health alteration with temperature

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increase, tachycardia, tachypnea and sweating. There were collected urine and vaginal discharge, and antibiotic treatment was started. On day 4 postpartum, the patient was discharged by request, in general good condition, physiological involution of the uterus, serous, bloody lochia and with the recommendation to continue antibiotic treatment and to return for check-up one week later, or as needed.

From the second general clinical observation sheet, we found out that the patient was readmitted on emergency, 2 days after discharge, with malaise and abdominal pain. Clinical examination performed upon admission noted: suffering facies, pale and cold skin, blood pressure = 90/60 mmHg, wet pulmonary crackles, painful abdomen with muscular defence, absent bowel (24h) and oliguria.

Blood tests were performed, detecting increases in inflammation markers, urea, creatinine, bilirubin and INR, and urinalysis showed white blood cells, frequent epithelial cells, microbial flora and granulomatous cylinders. Emergency abdominal ultrasonography detected effusion, especially in the declive areas of the abdominal cavity in relatively large amounts.

Clinical data were combined with laboratory data leading to the diagnosis of "septic shock. Acute pelvi-peritonitis on day 7 postpartum". Under general anesthesia, emergency midline laparotomy was performed, revealing about 500 ml purulent fluid, yellowish-green, fetid and false membrane on the surface of the uterus so, it was decided to perform total hysterectomy with bilateral salpingo-oophorectomy. During surgery, patient's condition deteriorated, suffering a cardiopulmonary arrest, for which cardiopulmonary resuscitation manoeuvres were made, which proved ineffective, declaring the death.

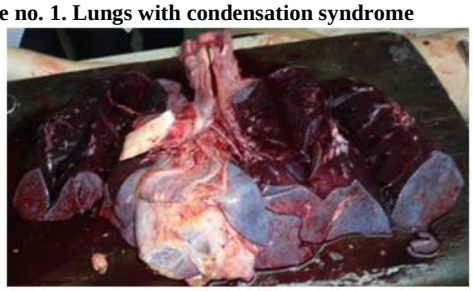
Studying the medical records of the case prior to the autopsy, we raised the issue of some possible causes of the death of a woman in childbirth, as being the following: postpartum hemorrhage - obstetrical causes, drug and physiological causes, disorders of hemostasis; amniotic embolism, pulmonary thromboembolism; puerperal infection; violent deaths - by traumatic mechanical, physical, chemical, biological causes.

External examination of the forensic autopsy revealed: treatment signs - median laparotomy with corresponding suture, peritoneal drainage, episiotomy and episiorrhaphy; various signs - motherhood changes (hyperpigmentation of nipples and of abdominal white line, installation of lactation, presence of bloody lochia) sclero-tegumentary jaundice.

No signs of violence were detected by which we can assert the existence of trauma, based on which we could have suspected mechanical trauma as the cause of death.

Head and neck internal examination revealed no pathological changes, with normal aspect except for the presence of stasis and acute cerebral edema, occurred after death with no pathologic significance.

Figure no. 1. Lungs with condensation syndrome



The internal examination of the chest found: effusion of purulent aspect, yellow-green, fetid, at the level of pleural cavities bilaterally, and yellowish-green, false membranes adherent, detachable, placed on the rear faces of the lung and pericardium; lungs of increased consistency without air leakage crepitus on palpation, layout homogenized per sectors, advocating for the presence of pulmonary condensation syndrome. Hydrostatic pulmonary docimasy made with large and small fragments of lung parenchyma was positive, fragments sinking, because condensed lung density is higher to condensed water.(7)

Figure no. 2. Hydrostatic docimasy

Internal examination of the abdomen revealed the presence of thick serosanguineous fluid (200-300 ml) in the abdominal cavity, particularly in declive spaces, as well as greenish-yellowish false membranes, adherent, detachable especially corresponding to the upper abdominal floor, on liver and spleen area. The liver and kidneys showed acute dystrophic changes (marbleish liver on both the surface and on section with yellow spots, increased consistency, accentuated friability; marbleish kidney, globally, with intumescing whitish pyramidal centre, with purple peripyramidal border) arising in the context of multiple system organ failure (MSOF) syndrome within the toxic-septic condition.

Figure no. 3. Perihepatic false membranes

Figures no. 4, 5. Acute heapto-renal dystrophy

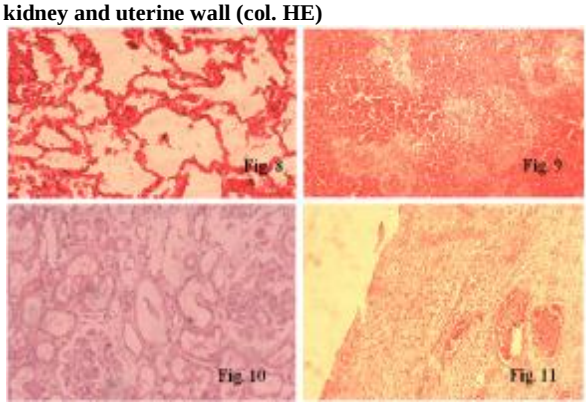
The internal pelvic examination revealed changes consecutively to total hysterectomy and bilateral ovariectomy, corresponding suture and drainage tube at the level of Douglas's pouch bottom, as well as small amounts of sanguineous fluid and rare yellowish false membrane. Examination of the uterus and annexes, intraoperatively harvested and stored in fixative liquid, revealed the presence of an abscess of the uterine wall, well localized, encapsulated and the existence of an acute endometritis in advanced stage.

Figures no. 6, 7. Uterine fragment with edometritis and abscess

Macroscopic changes described in the internal exam advocated for the existence of toxic-septic syndrome, occurred in the evolution of pelviperitonitis.

Diagnoses were confirmed by: *microbiological examinations* - extemporaneous smear from uterus abscess (cell debris, mixed inflammatory elements, rare lymphocytes), cultures (Enterobacter cloacae, Pantoea spp.) and Gram stain test (leukocytes and erythrocytes, rich flora associated) and *histopathological examinations* – lung fragments (septal dilated capillaries full of red blood cells, homogeneous eosinophilic intra-alveolar material, haematic extravasations and ruptures of alveolocytes) liver fragment (extended necrotic areas infiltrated with abundant leukocytes), kidney fragment (dull cellular line, dystrophy and necrosis of the renal tubules) fragment of uterine wall with abscess (interstial edema, massive leukocyte infiltration and hematic extravasations).(8)

Figures no. 8, 9, 10, 11. Microscopic aspects of lung, liver, kidney and uterine wall (col. HE)



With regards to all the findings, it was concluded that the death of the so-called, R.L.M., was nonviolent and that it was due to septic toxic shock, as a result of purulent pelvic-peritonitis in a patient with uterine wall abscess and recent naturally delivery (confinement day 7).

Subsequently to autopsy, on the occasion of issuing the death certificate to the family (mother-in-law of the dead patient), there was applied a questionnaire specially designed to obtain additional information in terms of pathological personal history. Additional data were obtained from which we noted the most significant, as follows:

GENDER: *female,* AGE *23*
ORIGIN ENVIRONMENT: urban/*rural*
CIVIL STATUS: *1. married,* 2 widow, 3, divorced, 4. concubinage
NO.OF CHILDREN…….*2* of whom minors….2, adults…..*0*
OCCUPATION:.1. school-pupil/student,.2. *housewife,* 3. unemployed,.4. retired,.5. employed – position 6. no occupation
PROFESSION……...EDUCATION……secondary
NATIONALITY…..*Romanian*…ETHNICITY……*Rroma*
RELIGION……..*orthodox*
DECEASED INCOMES……*no incomes*……..
FAMILY TOTAL INCOMES……low (no social aid)……..
RESIDENCE…1. personal property….2. rental…..3. *living with parents,* 4. other……
PLACE OF DEATH: 1. at home.2. *at hospital*…...3. other…..
PATHOLOGICAL ANTECEDENTS:

- *Diagnosed with acute cervicitis by the gynaecologist about one year ago (previous to pregnancy), affirmatively, she did not take the recommended treatment*
- *Records of the family physician: multiple genital infections during one year, with febrile episodes, affirmatively the lack of therapeutic compliance.*
- *One hospitalization during pregnancy, month 3 with the diagnosis of "Chronic cervicitis", being discharged by request without coming to check-ups.*

NEURO-PSYCHIC DISEASES: depressive episode 2 years one, hospitalized
ALCOHOL CONSUMPTION: 1. daily, 2. *occasionally…* 3. frequently ……4. never

CONCLUSIONS

After studying the reported case, we conclude that therapeutic noncompliance of the patient (she did not go to the doctor's, as directed and did not follow the prescribed treatment), on one hand, and the low socio-economic status on the other hand, led to a premature death in a young person, the case being considered an avoidable death. In such situations, due to a sudden death, it is necessary to conduct a forensic autopsy.

Taking into account that the level of preventable death phenomenon, measured by counting the avoidable causes of death, can be considered as one of the indicators for assessing the quality of care and the indicators of healthcare outcomes, as well as the fact that in Romania, avoidable mortality ranks first in Europe, with an increasing trend, primarily for disorders that are 100% treatable, we consider it is necessary to study such deaths (including through prospective studies - by applying a specially designed questionnaire).(9) The aim of such a study is to identify the epidemiological factors involved in the occurrence of such deaths, with the ultimate goal to take prophylactic measures.

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