Original Research Article

Cervical cancer screening in pregnancy at the maternity clinics of Nabil Choucair health center and the Institute of Social Hygiene of Dakar, Senegal: a study on 67 cases

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ABSTRACT

Background: This study aims were to develop the epidemiological profile of patients who received Pap smears during pregnancy, to describe aspects of cytological smears performed in pregnant women and to describe the therapeutic management in case of anomalies in the cervical smear during pregnancy.
Methods: This was a prospective, descriptive and analytical study conducted from January 15, 2015 to June 31, 2015 at maternity of Nabil Choucair Health Centre and the Institute of Social Hygiene in Dakar. The Pap smear was performed in all patients who had given their consent to the experience. The parameters studied concerned socio-demographic aspects, gynecological and obstetric background, gestational age at the time of collection, cervico-vaginal smear results, diagnostic and therapeutic management of cytological and histological abnormalities. The data collected on a survey sheet prepared for this purpose were entered and analyzed through the version 3.5.3 of Epi info software.
Results: During the study period, 67 pregnant women had received a Pap smear. The epidemiological profile of our patient was a paucipare gestity with an average of 3 with extremes ranging from 1 to 7, an average parity of 2.4 with extremes ranging from 1 to 7. The mean age of pregnancy was 15.4 weeks of amenorrhea (range of 6 and 32 weeks). Only 5 patients (7.4%) had already received a cervical-vaginal swab before the study. The smear was normal in 88.7% of the cases but got abnormalities in 11.3% of the cases. The abnormalities were mainly found in squamous cells and were divided into low-grade lesions (57.1%) and skew-cell abnormalities whose meaning was undetermined (42.1%). Colposcopy was performed in 8 patients. Colposcopy was normal and satisfactory in 4 patients (50%) and identified as atypical grade 1 transformation in 2 patients (25%) and an atypical grade 2 transformation in 2 patients (25%). From a therapeutic point of view, diathermic loop conduction associated with strapping was performed in one patient (12.5%) for severe dysplasia. In postpartum, all dysplastic cervical lesions diagnosed during pregnancy had declined.
Conclusions: In the context of our study, where there is no organized screening policy for cervical cancer, antenatal clinics are an excellent screening opportunity to seize.

Keywords: Cervical cancer, Colposcopy, Conization, Pap smear, Pregnancy

INTRODUCTION

Cervical cancer is a public health issue. Each year, 585,000 new cases are detected worldwide and this disease causes 265,000 deaths.[1,2] More than 85% of women affected by cervical cancer live in developping countries.[1,2] In Senegal, there are approximately 1,482 new cases and 858 deaths each year. These figures are attributable to delayed diagnosis due to the lack of organized programmes and strategies of cervical cancer screening.[3] Pregancy is therefore a prime opportunity to detect cervical displasias.[2,4-6]

The objectives of this study were to determine the epidemiological profile of the pregnant women who got pap smears, to describe the cytological aspects as well as the diagnostic and treatment of cervical abnormalities during pregnancy.

METHODS

Type of study and reporting period

This is a prospective and descriptive study conducted in two areas. One is the maternities of Nabil Choucair Health Center and another that of the Institute of Social Hygiene, both located in the semi-urban area of Dakar. It was conducted over the period stretching from January 15, to June 31, 2015 (six months).

Inclusion criteria

In our study, we included any parturient woman with a normal intrauterine pregnancy confirmed by an obstetrical ultrasound.

Non-inclusion criteria

In this study, we excluded in utero foetal deaths, any non-pregnant patient or those whose pregnancy test was not confirmed by ultrasound or patients whose pap smear was perfomed less than a year ago.

Data collection

This study focused on parameters such as socio-demographic aspects, obstetric and gynecological history, the gestational age at the time of examination, the results of pap smear, diagnosis and therapeutic treatment of cytological and histological abnormalities. For conventional pap smear, the specimens were collected in various cytology laboratories located in Dakar. As for liquid pap smears, specimens were collected at Institute Pasteur de Dakar or at the BIO 24 laboratory. All patients with cytologic abnormalities, according to the Bethesda classification, had undergone colposcopy.

When confronted with abnormalities detected through colposcopy, we carried out a biopsy which was taken to anatomical pathology laboratories located in the Dakar area.

Only patients with micro-invasive carcinoma revealed by colposcopy biopsy had undergone cone biopsy through diathermy loop. This cone biopsy was performed after a cerclage.

Data entry and analysis

The data gathered on a tailored survey form were entered and analysed using Epi info software, version 3.5.3.

RESULTS

Socio-demographic characteristics

Age

The average age of pregnant women included in this study was 31.8 with extremes ranging from 18 to 45 years old.

In half of the cases (50%), pregnants were aged between 30 and 39.

Marital status

All pregnant were married.

Gestity

The average number of pregnancies was 3 with extremes going from 1 to 7.

In our study, 37 patients (55,9%) had been pregnant at least 3 times.

Parity

Mean parity was 2.4 with extremes going from 0 to 8. The number of paucipares, multiparous and nulliparous were 36 (54, 2%), 20 (30, 5%) and 10 (15, 3%) respectively.

Marriage age

The average age of marriage was 22.2 years with extremes going from 12 to 35 years.

Age at first sexual intercourse

The average age at first intercourse is 21.7 years with extremes going from 12 to 35 years.

Age of the first pregnancy

The average age at the first pregnancy was 24.4 years with extremes going from 17 to 37 years.

Clinical and cytological data

Gestational age

The average gestational age was 15.4 weeks of amenorrhea with extremes going from 6 to 32 weeks. In almost half of the cases (40.3%), the gestational age was between 6 and 11 weeks of amenorrhea, as showed in Table 1.

Table 1: Distribution of patients according to the gestational age.

Gestational age	Number (n)	Percentage (%)
6-11 WA	27	40.3%
12-17WA	23	34.4%
18-23 WA	7	10.3%
24-29 WA	7	10.3%
≥30 WA	3	4.5%
Total	67	100%

Results of pap smear

Type of environment

In more than half of the cases (51.6%), the pap smear was performed in a liquid environment.

Cytological aspects

In most cases (88.7%), the pap smear did not show any cervical dysplasia as indicated in Table 2. Among patients with abnormal pap smear, 5 had low-grade lesions (57.1%) and 3 had squamous cells lesions of undetermined significance (42.9%) (Table 2).

Table 2: Distribution of patients according to the results of pap smear.

Results of pap smear	N	%
Normal	59	88.7%
Abnormal	8	11.3%
• LSIL	5	57%
• ASC-US	3	47%

Bacteriological aspects

In our study, 21% of pregnant patients developed inflammation and 25% had a Gardnerella Vaginalis, Candida Albicans, Trichomonas Vaginalis and Chlamydiae Trachomatis infection in respectively 60%, 20%, 13.3% and 6.7% of cases.

Colposcopic aspects

In our study, 8 patients (11.3%) had undergone a colposcopy. At the end of the coloposcopy, 4 patients (50%) had normal and satisfactory results for 1 ASC-US smear and for 3 LSIL smear, 2 patients (25%) had a grade-1 atypical transformation with a satisfactor colposcopy for one LSIL smear and 2 patients (25%) had a grade-1 atypical transformation with one non-satisfactory colposcopy which prompted us to perform 2 biopsies after 1 ASC-US smear and 1 LSIL smear. Biopsies revealed one CIN1 and one CIN3 in which we could not rule out a micro-invasion (Table 3).

Table 3: Results of pap smears, colposcopies and histologies.

	Pap smears	Colposcopies	Histologies
Patient 1	ASC-US	Normal and satisfactory	
Patient 2	LSIL	Normal and satisfactory	
Patient 3	LSIL	Normal and satisfactory	
Patient 4	LSIL	Normal and satisfactory	
Patient 5	LSIL	Grade-1 atypical transformation Satisfactory colposcopy	
Patient 6	LSIL	Grade-1 atypical transformation Satisfactory colposcopy	
Patient 7	LSIL	Grade-2 atypical transformation Non-satisfactory colposcopy	Cervical intra epithelial Neoplasia (CIN) 1
Patient 8	ASC-US	Grade-2 atypical transformation Non-satisfactory colposcopy	Cervical intra epithelial Neoplasia (CIN) 3

Therapeutic aspects

We performed a cone biopsy for one CIN3 in which the pathologist could not rule out a micro-invasion. This cone biopsy was done using a diathermy loop under spinal anaesthesia, and it was associated with a stitching.

DISCUSSION

Socio-demographic characteristics

For 20 years, the number of precancerous lesions has been on the rise among young women, increasing thereby the likelihood of the presence of these lesions in pregnant women.[5,7] The epidemiological profile used in this study was a paucipare (3 deliveries on average) aged 31.8 on average, with a mean parity of 2, who had her first sexual intercourse at 21 and who got married at the age of 22. Our findings are not very different from those prsented in the literature.[5,7] In Senegal, the 2010 Demographic and Health Survey had revealed a maximun fertility level

between 20 and 29 years with an average age of 22 at the first sexual intercourse. In France, the age of the first pregnancy is around 30.

The diagnosis of precancerous lesions of the cervix in this country is around 30-35 years, which is the highest age range for dysplasias but also the age range of occurrence of pregnancies.[3,8-10]

Clinical aspects

There is no consensus on the ideal phase of pregnancy at which pap smear should be perfomed.[2]

In our study, the average gestational age was 15.4 weeks.

In France, according to the recommendations by the Haute Autorité de la Santé, pap smear should be performed before the 14th week of Amenorrhea.[6]

The late gestational age among our patients is probably due to the age of the first prenatal visit which is often delayed in the Senegalese context.

In its anti-cervical cancer guide, the WHO declares that not suggesting the detection of cervical cancer during pregnancy should be considered as a lost opportunity. We systematically offered screening to all pregnant women who signed the consent form because our patients had never undergone a cervical cancer screening before pregnancy.[2]

Cytological aspects

More than half of the patients (51%) did the smear on a liquid environment.

The detection of cervical cancer through cervical cytology is supposed to result in 5% of conclusive tests in gynecological period. These figures are the same in obstetrical period. The reliability of pap smear during pregnancy is the same for the gynecological period. An over-estimation of 20.5% and an underestimation of 24% according to Baldauf.[11]

We registered more than three-quarters (59 patients) (i.e. 88.7%) of pregnant women with a normal pap smear.

In our study, 8 patients (11.3%) showed cervical dysplasias when subjected to pap smear.

Our findings are different from those in the existing litterature which shows a 5% rate.

The difficulties in making cytological interpretations are due to the fact that there is an important level of hormons during pregnancy, which results in sizeable cytological modifications. One of the most common cytological elements is the presence of cervical cells called navicular cells. Moreover, pregancy is responsible for stromal

gland hyperplasia, decidualization with the presence of Aria stella cells which could be confused with cellular atypias and of metaplasia of pregnancy ectropion.[10,13-17]

The distribution of lesions revealed by pap smear during pregnancy varies according to the centers and to the recruitment mode, but remains similar with those found in gynecological period with a predomiance of low-grade lesions.[4,15,16]

In our study, 5 patients (57.1%) had smear showing low-grade lesions and 3 patients (42.9%) had a pap smear with atypical squamous cells of undetermined significance.

Inflammation is common during pregnancy. In our study, 21% of parturients had an inflammation of the uterine cervix.

25% of patients had an infection. The germs responsible for those infections were Gardnerella Vaginalis in 60% of cases, Candida Albicans in 20% of cases and Trichomonas Vaginalis in 13.3% of cases.

Colposcopic aspects

The systematic performance of colposcopy during pregnancy in order to detect dysplasias is a matter of controversy.

The HAS (Haute Autorité de la Santé) in France recommends the systematic performance of colposcopy in case of dysplasia.[6]

The joint clinical guideline of the Societies of obstetrics, gynecology and cancerology of Canada recommends that a new detection pap smear be performed three months after the delivery in case of low grade squamous lesions and squamous cells of undertermined significance.[17]

All our patients with cervical abnormalities revealed through pap smear had undergone a colposcopy. Indications were respectively low grade lesions in 57.1% of cases and abnormal squamous cells of undertermined significance in 42.9% of cases.

During pregnancy, colposcopy shows some characteristic with a posterior cervix and bloated cervix linings, which decrease cervical exposure, hence the need to use a Collin speculum or lateral valves.

In our study, 5 patients (62.5%) had a normal and satisfactory colposcopy.

This figure is similar with those found in the literature.

In our study, the average gestational age was 15.4 weeks.

After the first quarter, cytology shows false positives due to pregnancy-related changes in the cervix such as

deciduosis with the presence of Aria Stella cell which can be confused with atypias as well as the presence of trophoblastic degenrated cells.

Biopsies showed one CIN1 and one CIN3 for low grade cervical abnormallities and for abnormal squamous cells of undertermined significance respectively.

The cytology-histology agreement for the diagnosis of low grade lesions was 20%.

In the literature, the agreement rate varies between 58 and 86%.

The Colposcopy-biopsy correlation during pregnancy is excellent and varies between 73% and 95%.[10,11,14,15] In our study, this rate was 100%.

Therapeutic aspects

The management of patients depends on 3 aspects: cytology, colposcopy and histology.

Intraepithelial neoplasias in pregnant women must be treated depending on specificities of the pregnancy. we should neither give unsufficient treatment to mothers nor impose a risky therapy on them during pregnancy.

Abstention is highly recommended in cases of dysplastic lesions revealed by histology during pregnancy. The treatment is authorised only in case of micro-invasive carcinoma discovered during pregnancy.[10,17,18]

If cytology, colposcopy and biopsy can't eliminate an invasion, a loop electrosurgical excision procedure should be proposed.[5,12]

The histological study of the conisation resected specimen a CIN2 intermediary cervical dysplasia.

Post-partum monitoring

The evolution of dysplasias during pregnancy is either stable or regressing. Progressions are rare ($\leq$5%). The few cases of invasive cancers diagnosed in the post-partum phase after a surveillance during pregancy seem to correspond to lesions more serious than expected and which were « missed » by colposcopy or biopsy.[4,7,8,18]

In our study, all the patients with cervical dysplasias revealed by cervical cytology had a pap smear two months after giving birth. Pap smear did not show any cervical abnormalities.

CONCLUSION

Cervical cancer remains a real public health issue. Developing countries like Senegal are characterized by the absence of organized programmes of cervical cancer screening. For us, detecting cervical cancer during prenatal visits is an excellent opportunity that should be siezed. We should therefore sensitize and train all health care providers who monitor and manage pregnancy on the detection of cervical precancerous lesions.

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