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# FEMALE GENITAL **SCHISTOSOMIASIS**

A POCKET ATLAS FOR CLINICAL HEALTH-CARE PROFESSIONALS





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© J. Starkey  
Girls carrying out their daily activities in a natural water body in an area endemic for schistosomiasis

# INTRODUCTION

Human schistosomiasis remains an important public health problem in many tropical settings. At least 261 million people require treatment for schistosomiasis and up to 659 million people are at risk.

Female genital schistosomiasis (FGS) is a manifestation mainly of *Schistosoma haematobium* infection. Given the nature of the signs and symptoms of FGS, women tend to approach health services with complaints of infertility or symptoms of sexually transmitted infections.

Clinicians are generally unaware of FGS because it is not described in the medical textbooks or nursing curricula in any of the countries where schistosomiasis is endemic. Laboratory diagnostics are inadequate. Consequently, for women of reproductive age living in areas endemic for *S. haematobium*, FGS remains highly prevalent and under-diagnosed due a low index of suspicion among health-care professionals. A high index of suspicion will allow a diagnosis of FGS pre-operatively and avoid unnecessary radical surgery and misdiagnosis of sexually transmitted infections.

This *Female Genital Schistosomiasis Pocket Atlas* has been developed as a visual aid to raise awareness of the infection and to facilitate clinical diagnosis by clinical health-care professionals working in low-resource settings, especially in rural areas where schistosomiasis is endemic.

## KEY FACTS

FGS is a common complication of schistosomiasis (bilharziasis, a worm infection) caused by the presence of eggs in genital tissues.

- FGS can be present without urinary schistosomiasis.
- FGS may be the most common gynaecological condition in schistosomiasis-endemic areas.
- FGS remains undiagnosed in most cases.
- FGS is associated with a risk of HIV and human papillomavirus infections.

Human schistosomiasis is widespread in Africa in rural and urban areas.

- It is transmitted by skin contact with infested fresh water.
- The worm lays eggs which are deposited in the organs and some eggs are excreted.
- Treatment with praziquantel aims to kill the adult worms and prevent new FGS lesions.



# SYMPTOMS

- Vaginal discharge
- Bloody discharge
- Bleeding after intercourse or spotting
- Genital itching or burning sensation
- Pelvic pain or pain during or after intercourse

Girls may present with some of the above symptoms.

Some patients may also have bloody urine.



# COMPLICATIONS

- Bleeding during examination (contact bleeding)
- Infertility
- Abortion or ectopic pregnancy
- Involuntary urination when coughing, laughing or jumping, etc.
- Genital ulcers
- Tumours or swelling (vulva, vagina, cervix)

Other complications of schistosomiasis include anaemia, stunted growth, abdominal cramps, learning difficulties and school absenteeism.

# DIAGNOSIS

For women and girls who present with urogenital symptoms and who have had contact with fresh water in countries endemic for schistosomiasis, the diagnosis of FGS must be considered. FGS is diagnosed by visual inspection of characteristic lesions on the cervix and vaginal wall. Visualization can be improved by using a digital camera or a colposcope. Current laboratory techniques are inadequate for diagnosing FGS.

# TREATMENT

The WHO-recommended treatment for schistosomiasis is:

**PRAZIQUANTEL 40 MG/KG AS A SINGLE DOSE**

Treatment kills the adult worms and prevents the development of new lesions. Treatment can improve reproductive health and diminish some FGS symptoms.

If one FGS case is seen, there are probably many others in the same area. All who have used the same source of water are at risk. It is especially important to identify children who may have early schistosomiasis.

In endemic areas, the regular treatment of young girls during mass drug administration to communities and schools is important in order to prevent FGS.

## USING THE POCKET ATLAS

Schistosomiasis control activities are currently managed mainly by public health officials, stakeholders in neglected tropical disease control programmes and school nurses implementing mass treatment. Individuals with symptoms of FGS, such as malodorous discharge, spotting, pain and incontinence, are managed by primary health-care professionals (in rural areas), clinics for sexually transmitted infections (in urban areas) and general practitioners. Clinical findings are usually identified by nurses doing Pap smears or working in the visual inspection with acetic acid programme or by doctors during speculum examinations. Gynaecologists will likely see patients when the primary health-care professionals suspect cancer or where symptoms and lesions are refractory to treatment of sexually-transmitted infections.

This pocket atlas should therefore be distributed alongside basic sensitization to public health and clinical health workers. Complementary resources to support the dissemination process, including a clinical poster and a generic PowerPoint presentation, are available through a dedicated web page at <http://fgs.pocketatlas.org>.

# METHOD FOR CLINICAL EXAMINATION

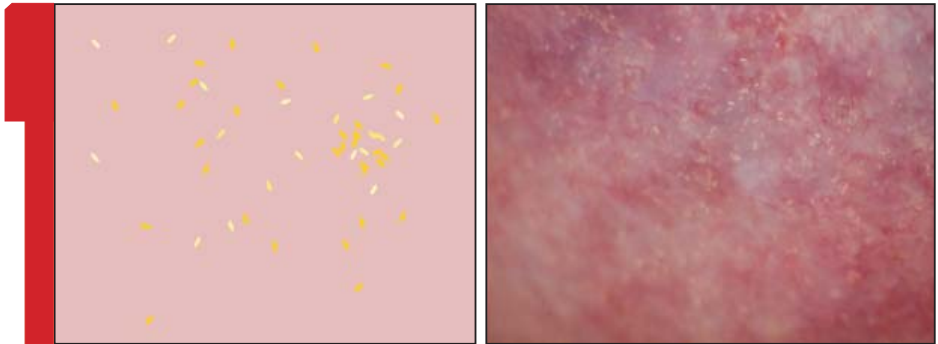
1. Prepare the patient for a gynaecological examination.
2. Ensure a good light source.
3. Inspect the vulva.
4. Insert a speculum and obtain a good view of the cervix, vagina and fornices.
5. If available, position the colposcope or camera; start with a low magnification.
6. Manipulate and rotate the speculum to visualize all the fornices and vaginal walls (anterior and posterior).
7. Compare with the Atlas images and record findings. Photograph if consent is obtained.

## NORMAL CERVIX



# SCHEMATIC OF LESIONS WITH REAL-LIFE EXAMPLE

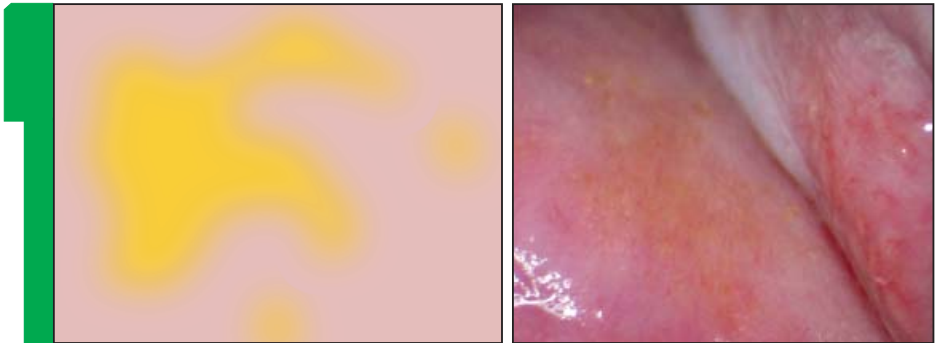
## GRAINY SANDY PATCH





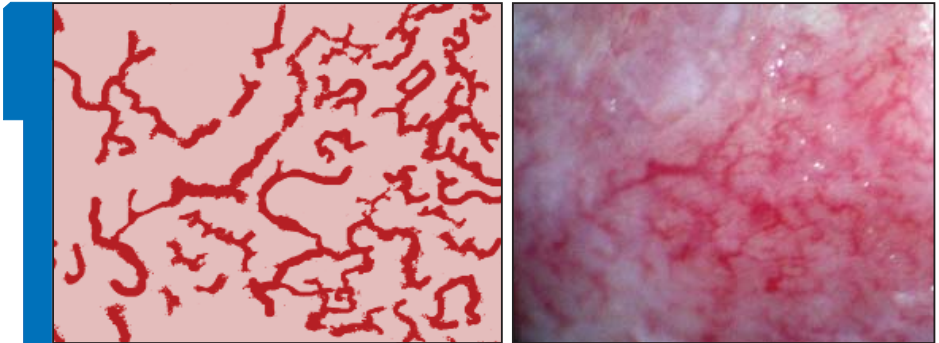
# SCHEMATIC OF LESIONS WITH REAL-LIFE EXAMPLE

HOMOGENEOUS YELLOW SANDY PATCH



# SCHEMATIC OF LESIONS WITH REAL-LIFE EXAMPLE

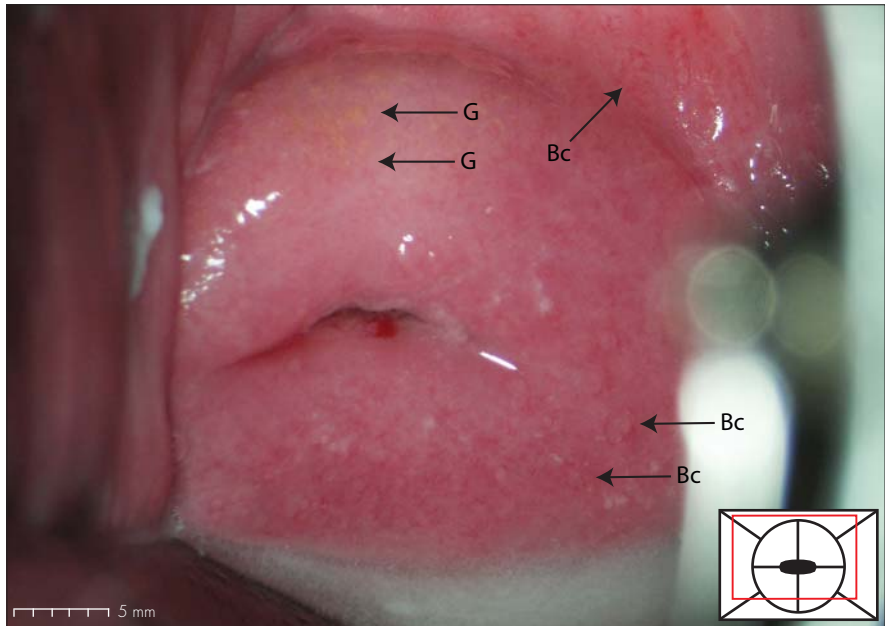
## ABNORMAL BLOOD VESSELS



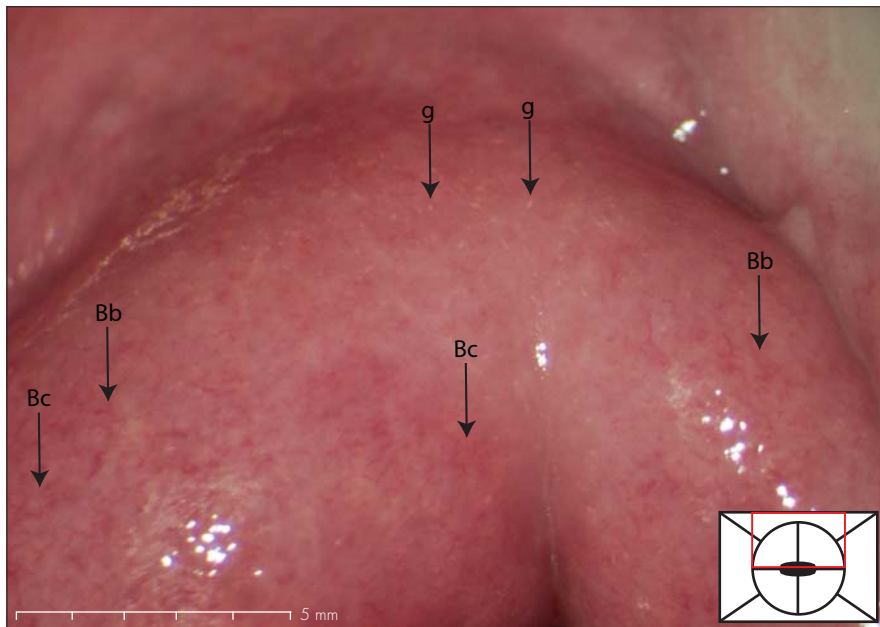
# SCHEMATIC OF LESIONS WITH REAL-LIFE EXAMPLE

## RUBBERY PAPULES

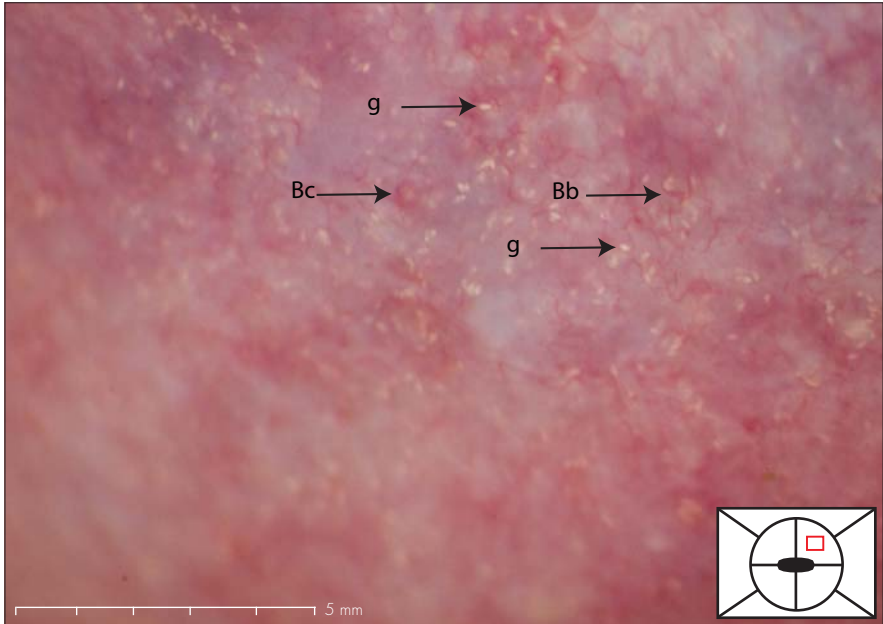




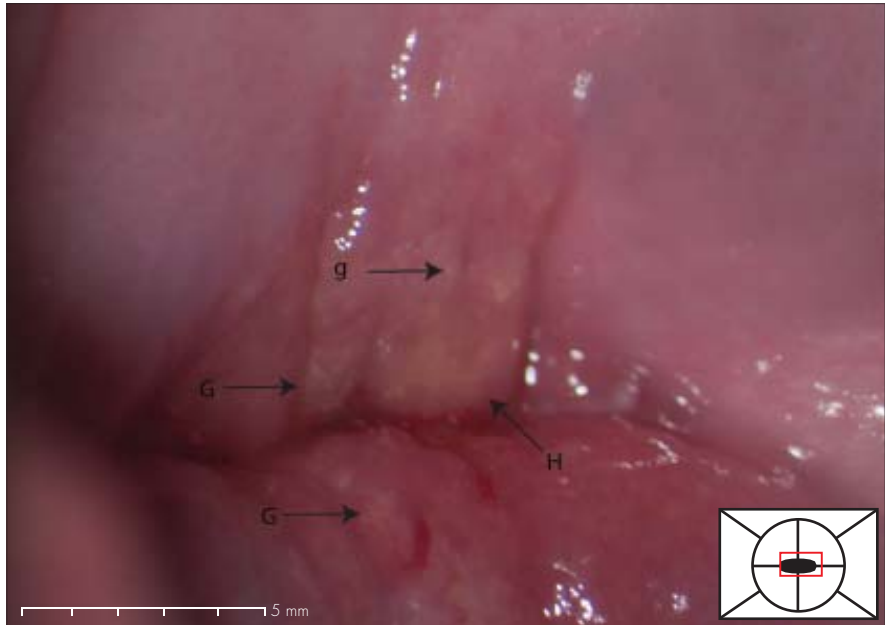
Grainy sandy patches (G). Widespread abnormal blood vessels: circular (Bc).  
The discharge shown is candidiasis.



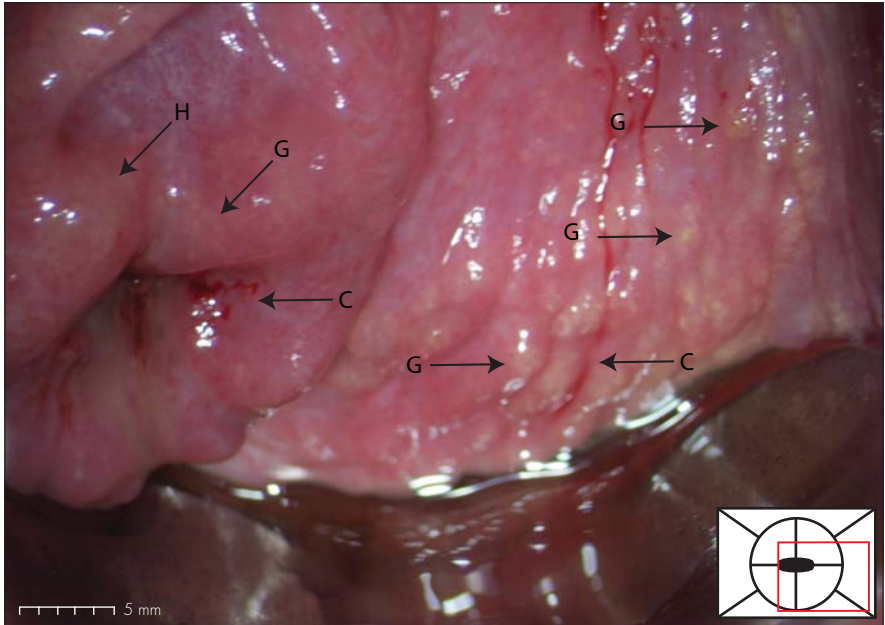
Sandy patch appearing as single grains (g). Widespread abnormal blood vessels: circular (Bc) and branched (Bb).



Widespread single grains (g) and abnormal blood vessels: branched (Bb) and circular (Bc).

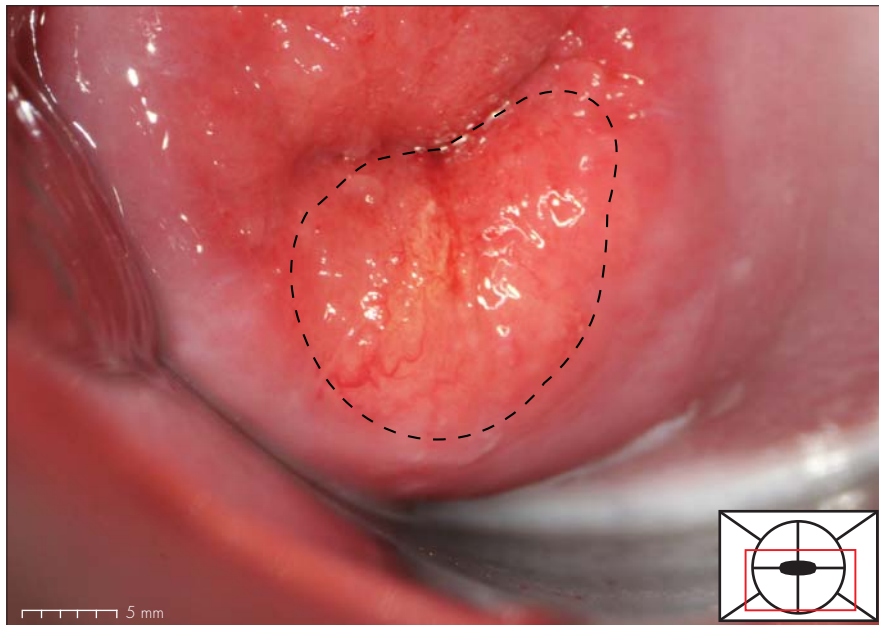


Grainy sandy patches (G) with single grains (g) and homogenous yellow sandy patch (H).

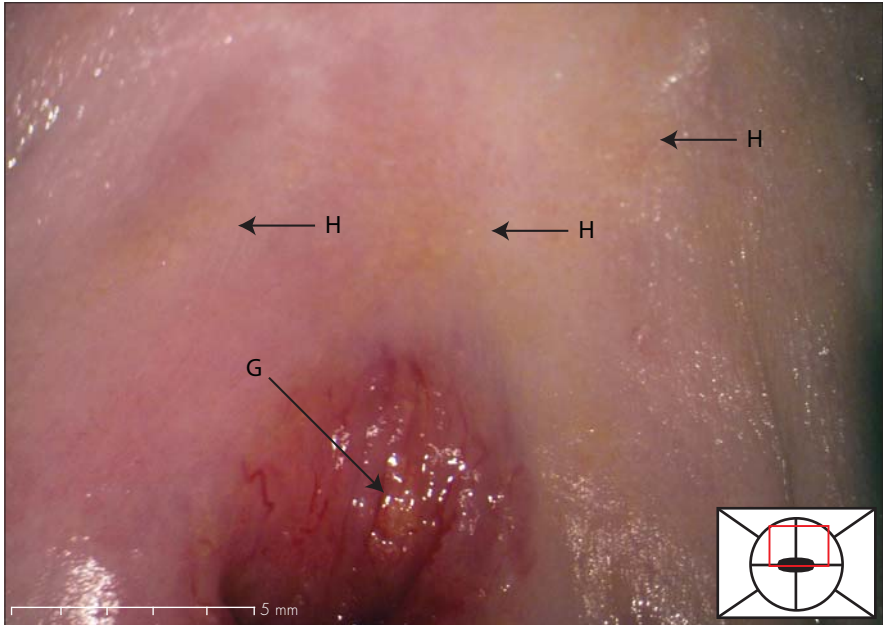


Widespread grainy sandy patches (G) on vaginal wall and cervix. Homogenous yellow sandy patches (H). Contact bleeding.

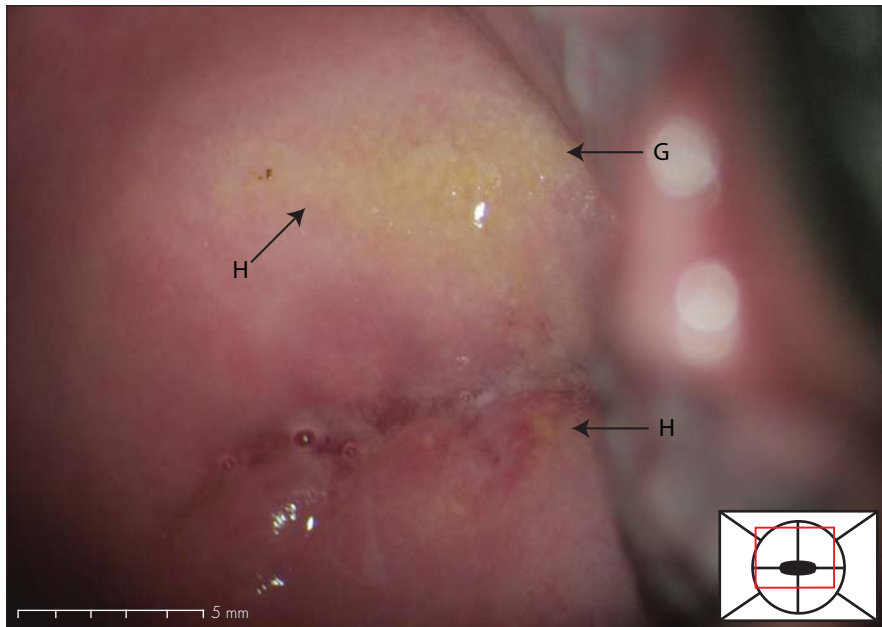




Homogenous yellow sandy patch (dashed line).

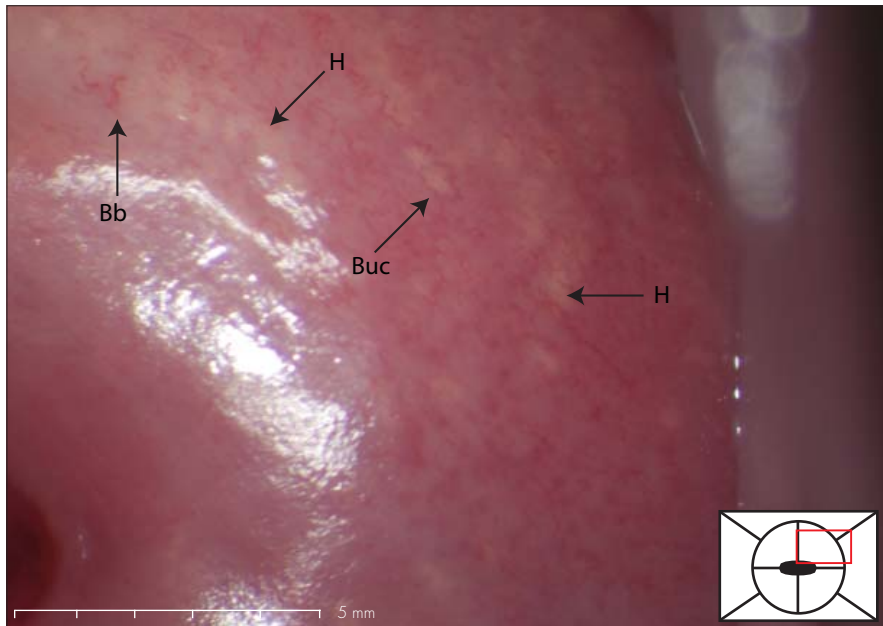


Homogenous yellow sandy patches (H). Grainy sandy patches (G).

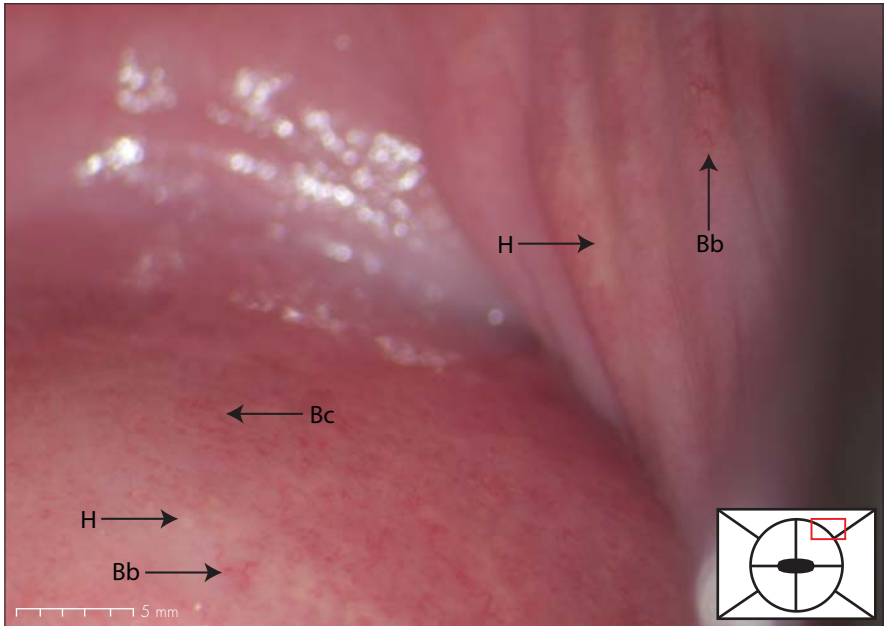


Homogenous yellow sandy patches (H). Grainy sandy patches (G).

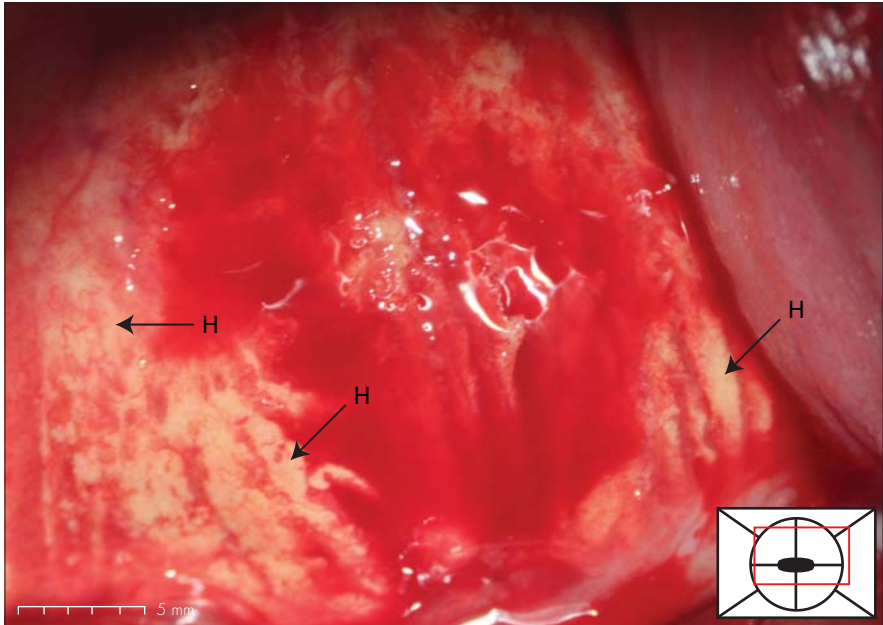
HOMOGENOUS YELLOW  
SANDY PATCHES



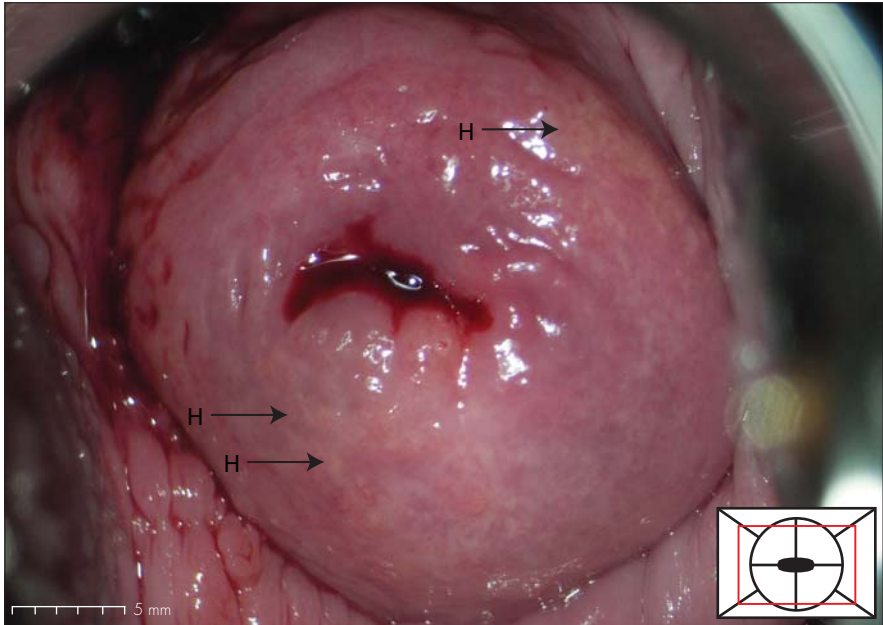
Homogenous yellow sandy patches (H). Widespread abnormal blood vessels: unevenly calibrated (Buc) and branched (Bb).



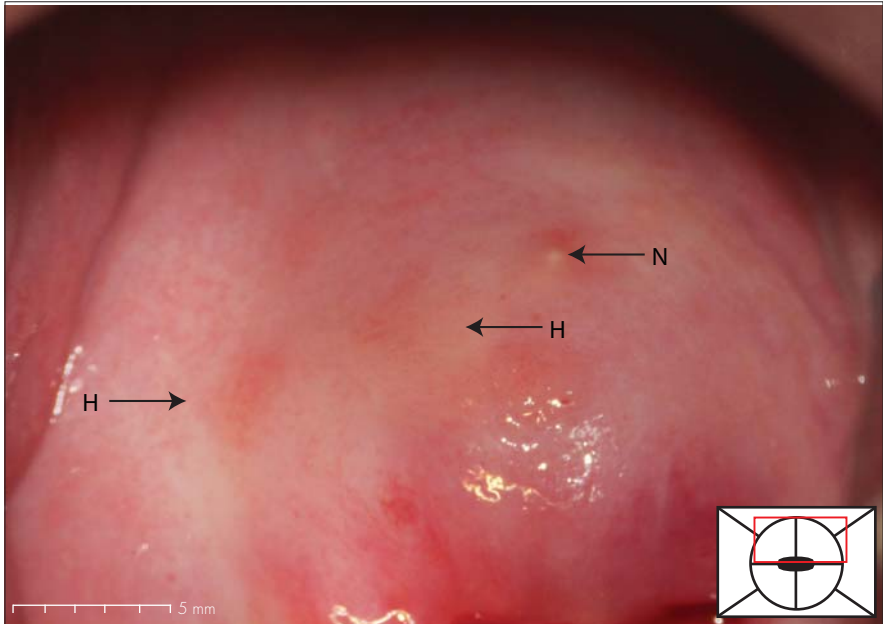
Homogenous yellow sandy patches (H). Widespread abnormal blood vessels: branched (Bb) and circular (Bc).



Severe case of homogenous yellow sandy patches (H) and severe contact bleeding.

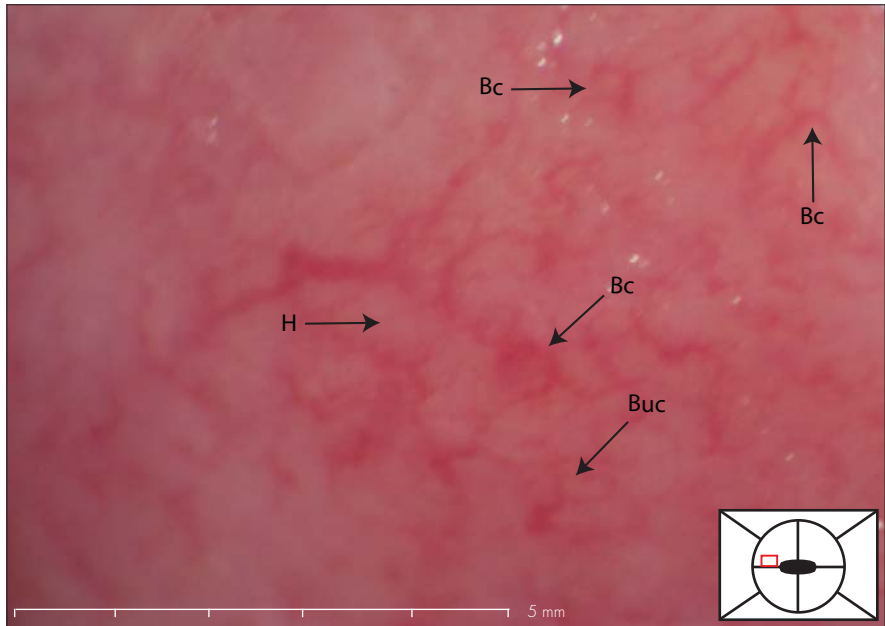


Homogenous yellow sandy patches (H). Widespread abnormal blood vessels. Menstrual blood in the os.

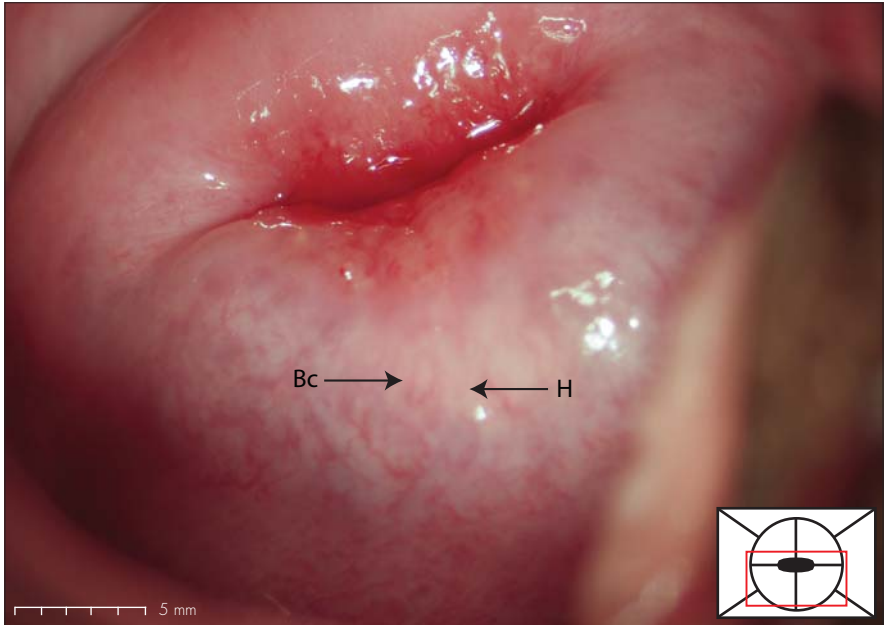


Homogenous yellow sandy patches (H). Nabothian cyst (N) (normal finding).

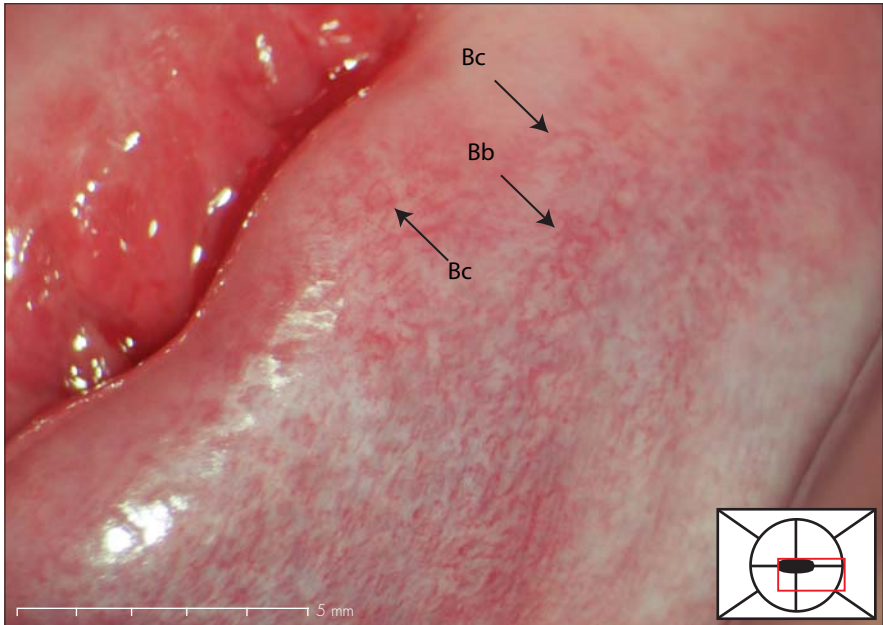




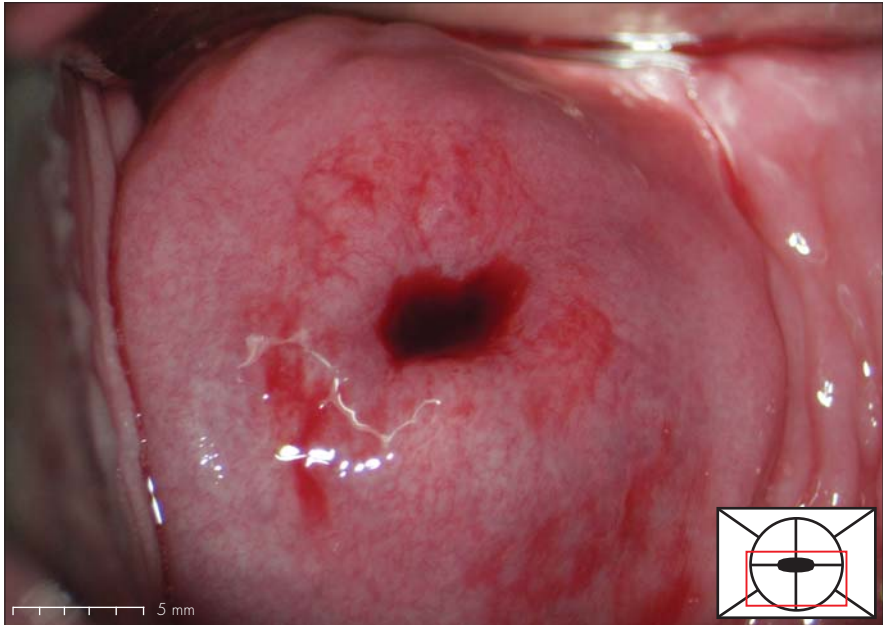
Network of abnormal blood vessels: semi-circular and circular (Bc), convoluted (winding) and unevenly calibrated (Buc). Homogenous yellow sandy patches (H).



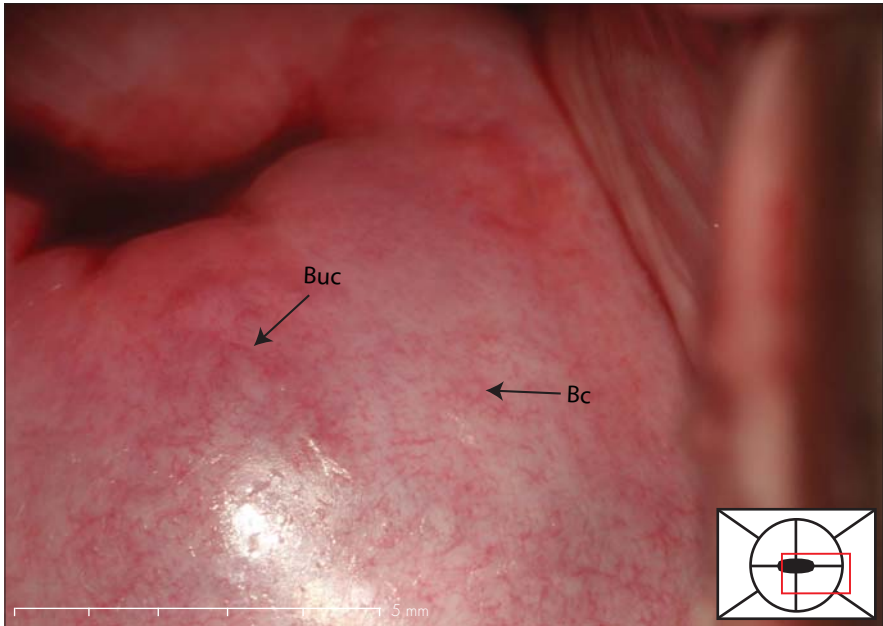
Widespread abnormal blood vessels: circular (Bc).



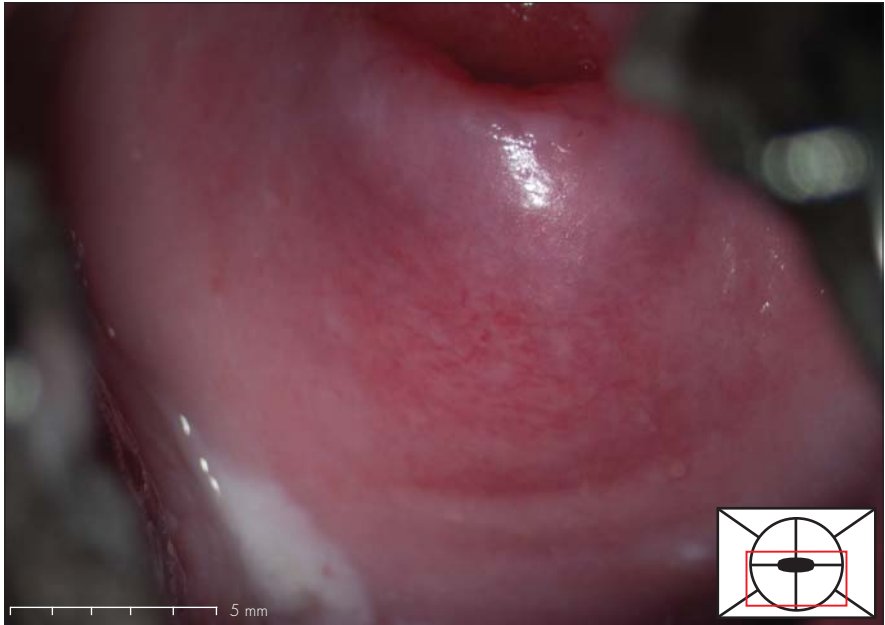
Widespread abnormal blood vessels: circular (Bc) and branched (Bb).



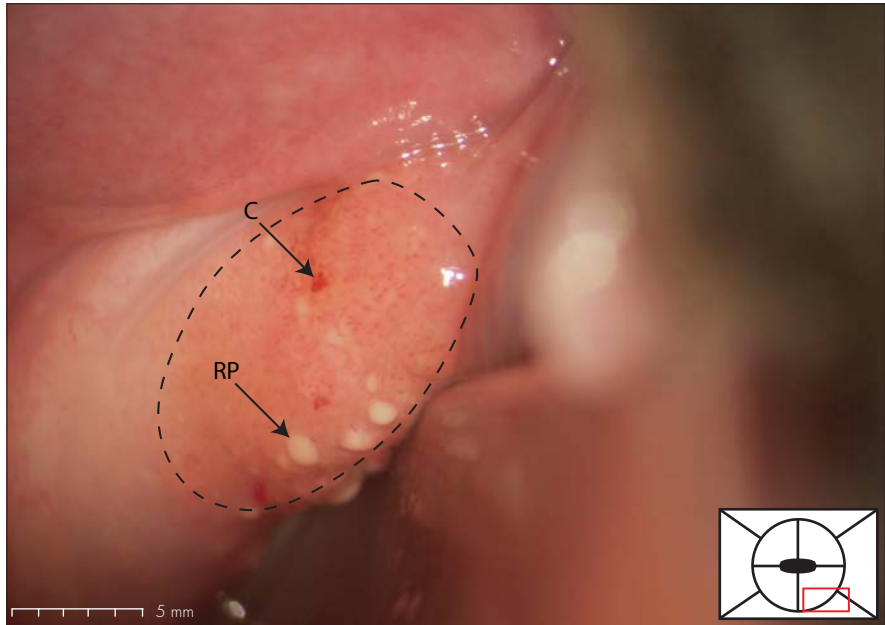
Widespread abnormal blood vessels. Menstrual blood in the os.



Widespread abnormal blood vessels: circular (Bc) and branched (Bb).



Widespread abnormal blood vessels. Menstrual blood in the os.

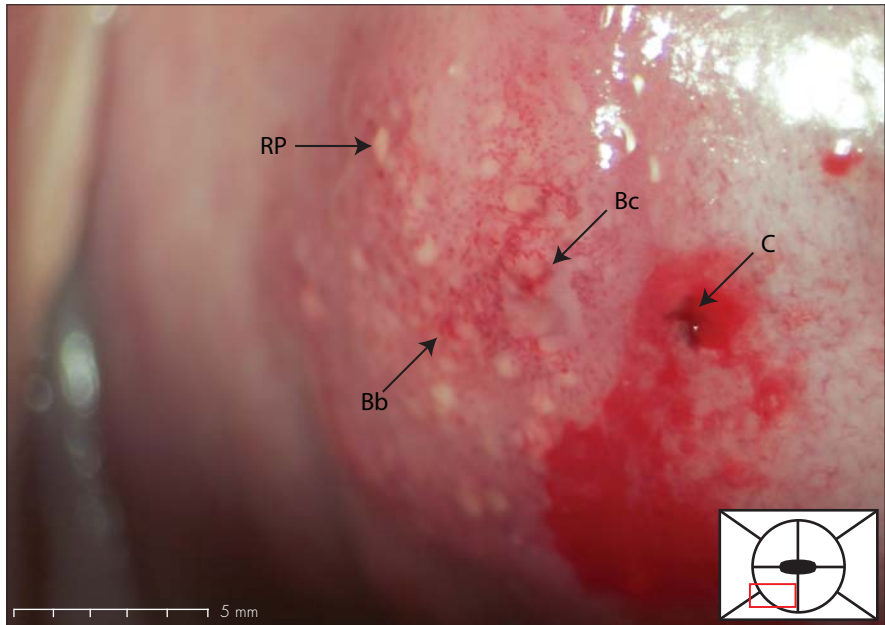


Rubbery papules (RP) on a background of homogenous yellow sandy patches (dashed line). Slight contact bleeding (C).

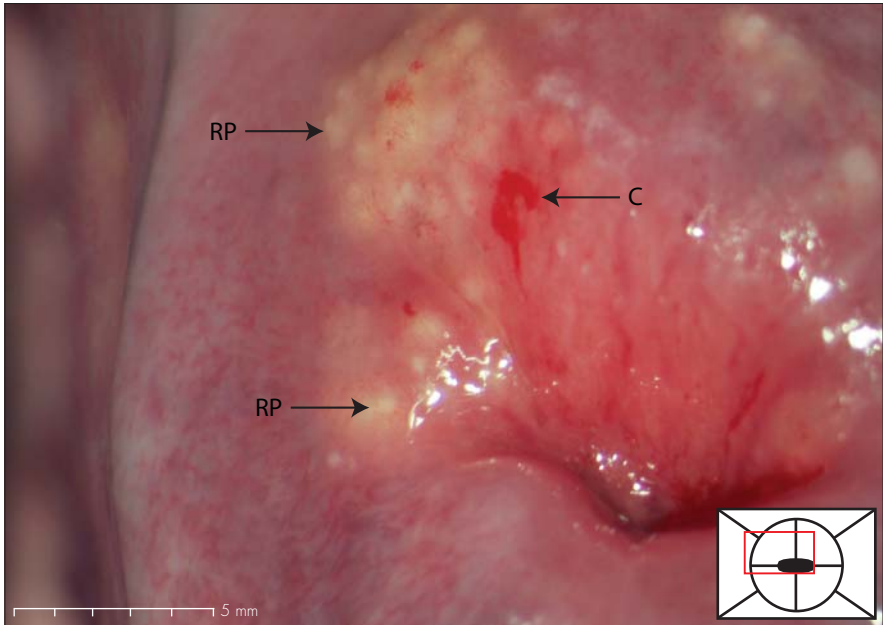


Widespread abnormal blood vessels: circular (Bc).

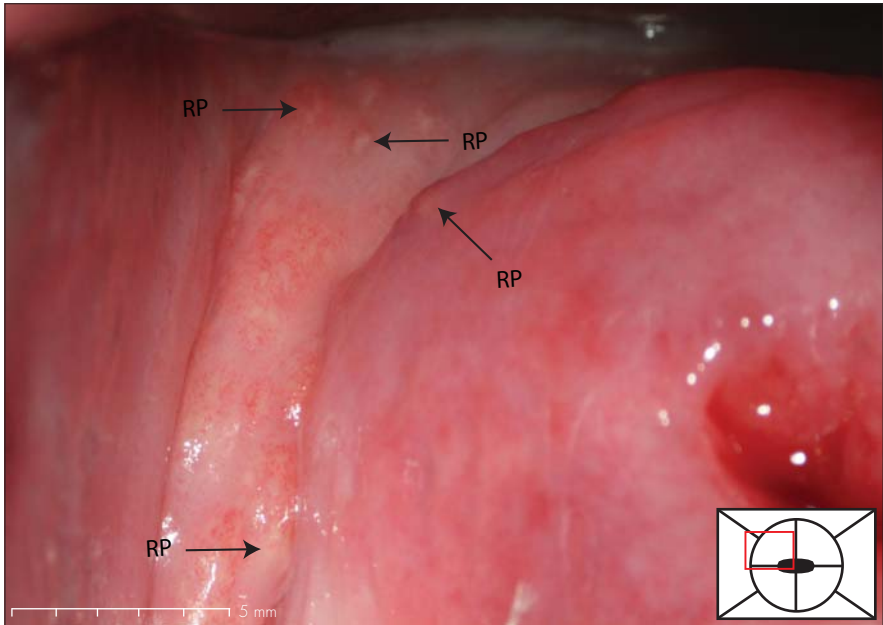




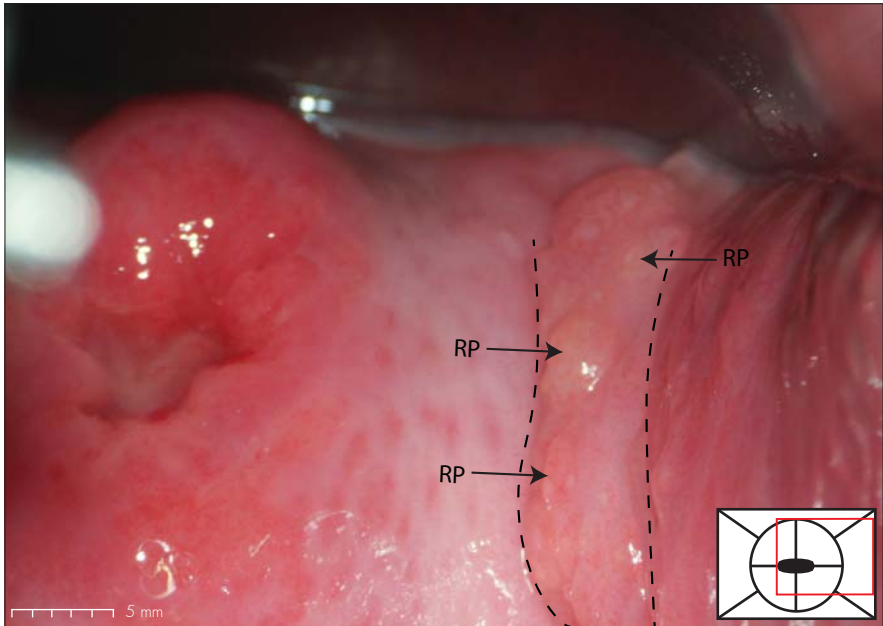
Rubbery papules (RP). Abnormal blood vessels: circular (Bc) and branched (Bb). Contact bleeding (C).



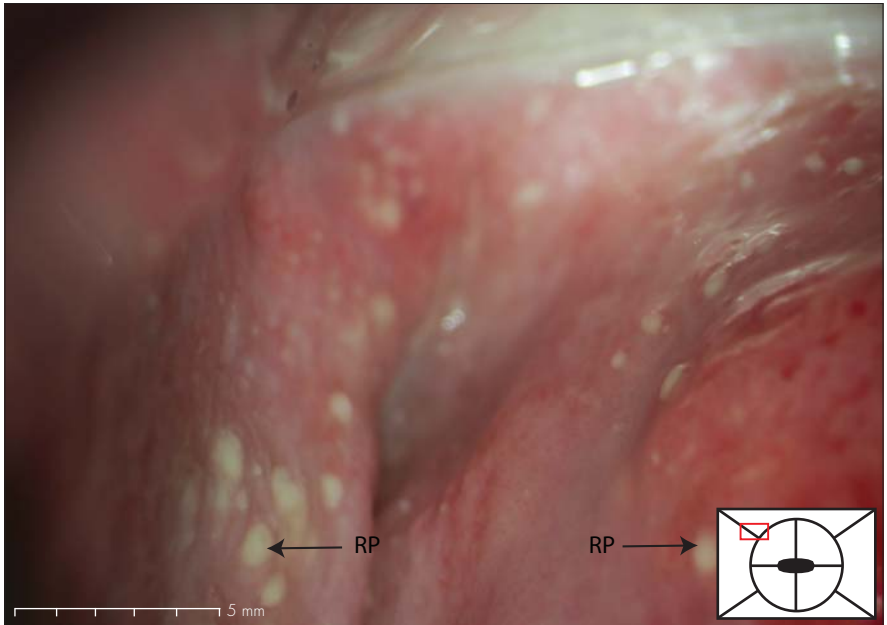
Multiple rubbery papules (RP). Widespread abnormal blood vessels. Contact bleeding (C).



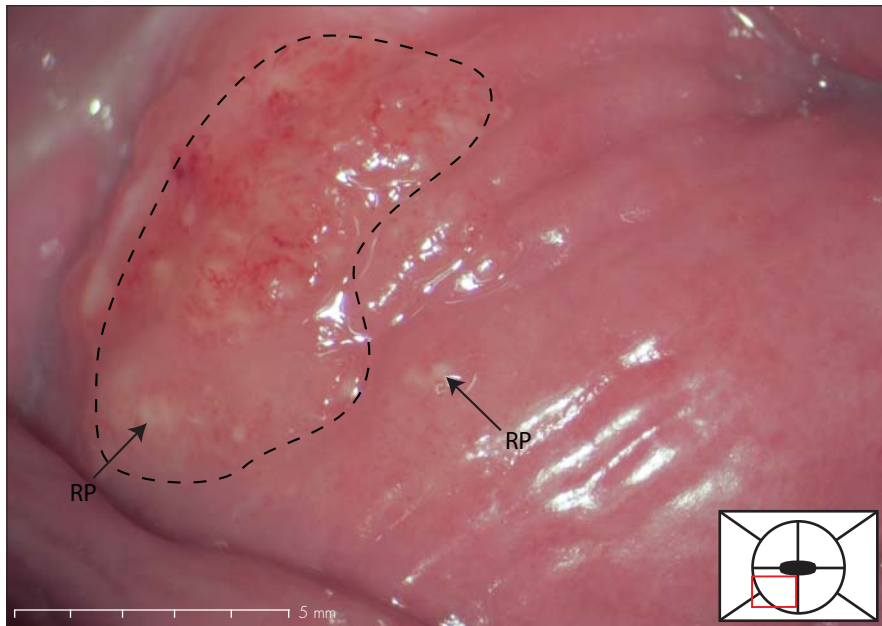
Rubbery papules (RP) on the cervix and vaginal wall.



Rubbery papules (RP) and homogenous yellow sandy patch (dashed line). Also positive for bacterial vaginosis.



Multiple rubbery papules (RP) of various sizes.



Clusters of rubbery papules (RP) and homogenous yellow sandy patch (dashed line) on the vaginal wall.

## IMAGE SELECTION AND ETHICAL CONSIDERATIONS

A four-stage blinded process was used to review more than 10 000 photocolposcopic images and select images with characteristic FGS pathology. The final set of 28 images presented in this Atlas is from Madagascar, South Africa and Zimbabwe. Individual consent was obtained in each case. Personal identification markers were removed for each image after selection. It is therefore not possible to identify the origin of each image, and for the same reason the person who captured the individual clinical data is not identified.

In each country, permission was sought from the national authorities and ethics committees. In Madagascar, ethical permission was obtained from the Committee of Ethics at the Ministry of Health in Madagascar. In South Africa, three ethics' committees granted permission to perform the study: the Biomedical Research Ethics Administration, University of KwaZulu-Natal, Department of Health, Pietermaritzburg, KwaZulu-Natal; the Regional Ethics Committee Eastern Norway; and the European Group on Ethics in Science and New Technologies 2011. The Departments of Health and Education in KwaZulu-Natal gave local permission. In Zimbabwe, the Provincial and District Medical Directors, the village headman and village meetings gave their permission to conduct the study. Ethical approval was given by the Medical Research Council of Zimbabwe and by the ethical committee of the Special Programme for Research and Training in Tropical Diseases.

Treatment and follow-up for schistosomiasis, sexually transmitted infections, cancer and other conditions were given in all sites.

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