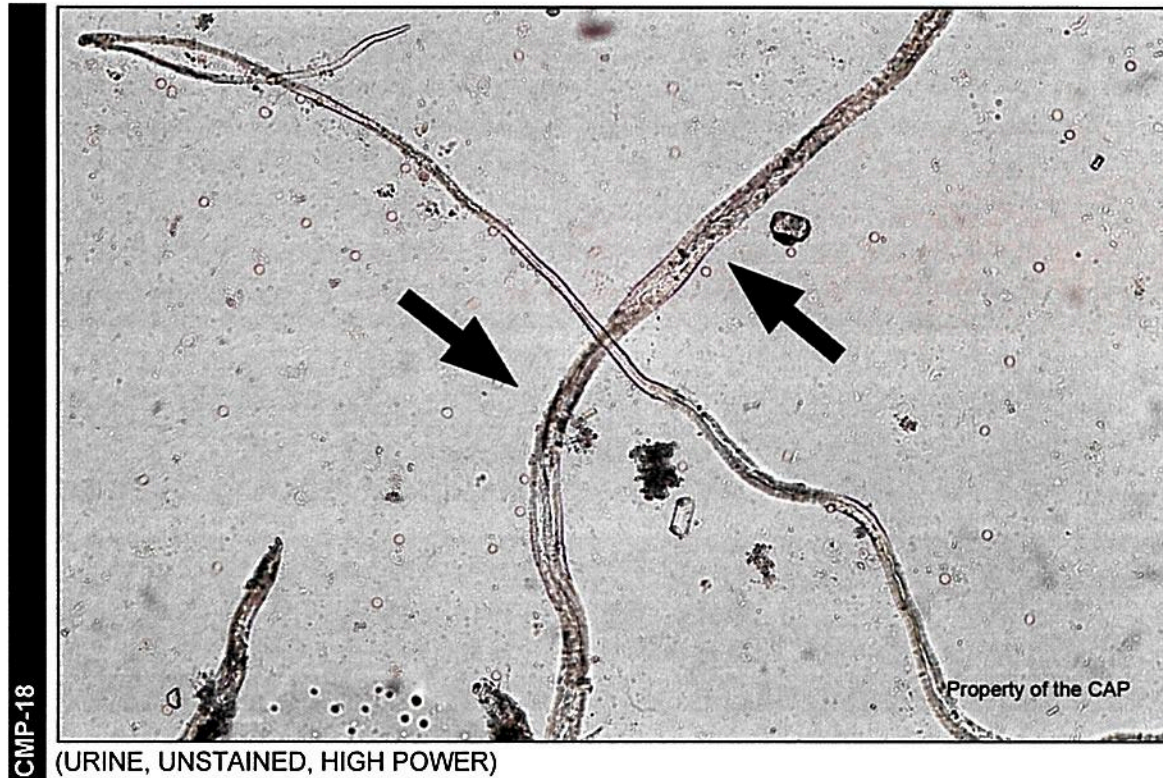


## Urine Sediment Photographs



Identification	CMP Participants		Performance Evaluation
	No.	%	
Fibers	5647	91.0	Good

The arrowed objects are fibers, as correctly identified by 91.0% of participants. Fibers are a common contaminant of urine and can be introduced during collection or processing. Fiber size and shape are variable, as the fibers may originate from clothing, hair, dressings or diapers. Fibers tend to be long, are usually birefringent under polarized light and may be refractile. Although the sides of fibers tend to be parallel, the sides may be nonparallel, twisted or frayed. Fibers are not associated with any disease states.

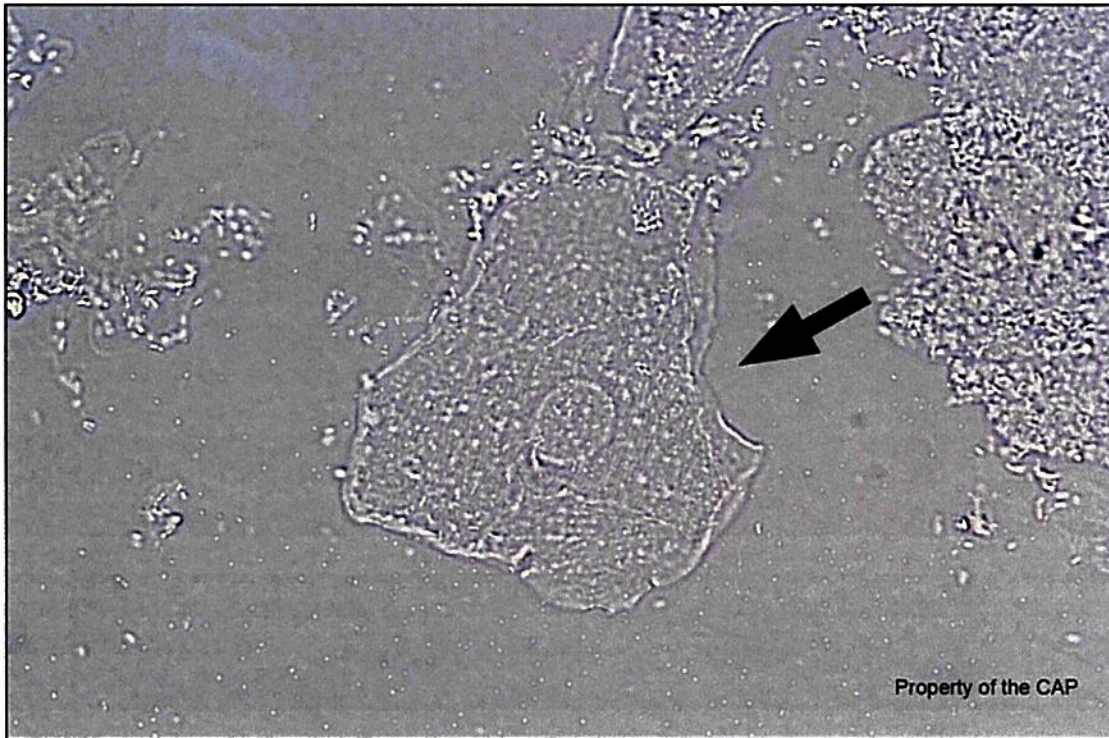
Fibers may be confused with mucous threads. Mucous threads do not have internal structure, are not refractile and do not exhibit birefringence. Fibers might also be confused with casts, particularly those originating in diapers. Fibers from diapers resemble waxy casts. However, most casts do not show birefringence, have an internal structure or have twisted forms. Fatty and crystal casts may have birefringence, but polarization of the fatty casts will show a "Maltese cross" pattern and distinct crystals should be evident in crystal casts.



## Urine Sediment Photographs

### Case History CMP-17 through CMP-20

The patient is a 43-year-old asymptomatic, healthy, athletic woman who participated in a marathon run 2 days prior. Laboratory data include: Specific gravity = 1.012; pH = 5.7; blood, glucose, ketones, nitrite, protein, and leukocyte esterase = negative.



CMP-17

(URINE, UNSTAINED, HIGH POWER)

Identification	CMP Participants		Performance Evaluation
	No.	%	

Squamous epithelial cell	5706	91.9	Good
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The arrowed object is a squamous epithelial cell, as correctly identified by 91.9% participants. Squamous epithelial cells are a normal finding in urine because they line or cover the bladder trigone, female urethra, vagina, and distal male urethra. Squamous epithelial cells are the most common type of lining cell seen in urine.

Squamous epithelial cells are large, thin, flat cells with sharp angulated margins, frequently containing keratohyaline granules. Squamous cells measure 30 - 50 microns in diameter and contain a round centrally located nucleus about the size of a red blood cell. Occasionally, squamous cells are found in sheets. Squamous cells act as a protective barrier. If large numbers of squamous epithelial cells are found in a specimen, it indicates that the specimen was not properly collected as a clean-voided midstream collection.

Squamous cells can be differentiated from transitional epithelial cells by their larger size, keratohyaline granules, small pyknotic nuclei and angulated margins.

Renal tubular epithelial cells differ from squamous cells in that they are smaller, elongated and have polar nuclei.