Pembentukan Telur

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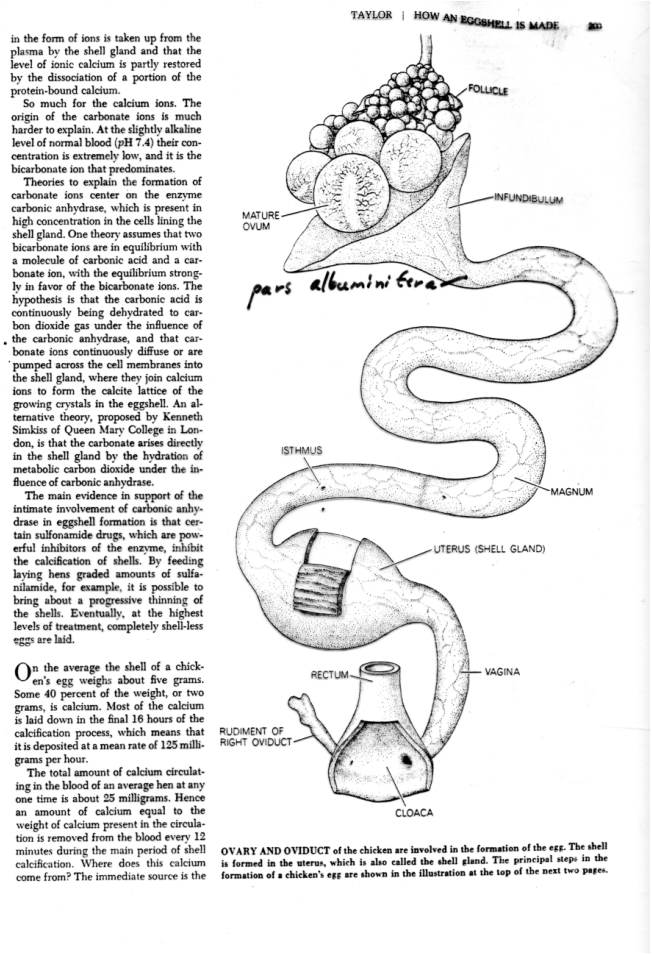
Pembentukan Telur

- Saluran reproduksi ayam



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in the form of ions is taken up from the plasma by the shell gland and that the level of ionic calcium is partly restored by the dissociation of a portion of the protein-bound calcium.

So much for the calcium ions. The origin of the carbonate ions is much harder to explain. At the slightly alkaline level of normal blood (pH 7.4) their concentration is extremely low, and it is the bicarbonate ion that predominates.

Theories to explain the formation of carbonate ions center on the enzyme carbonic anhydrase, which is present in high concentration in the cells lining the shell gland. One theory assumes that two bicarbonate ions are in equilibrium with a molecule of carbonic acid and a carbonate ion, with the equilibrium strongly in favor of the bicarbonate ions. The hypothesis is that the carbonic acid is continuously being dehydrated to carbon dioxide gas under the influence of the carbonic anhydrase, and that carbonate ions continuously diffuse or are pumped across the cell membranes into the shell gland, where they join calcium ions to form the calcite lattice of the growing crystals in the eggshell. An alternative theory, proposed by Kenneth Simkiss of Queen Mary College in London, is that the carbonate arises directly in the shell gland by the hydration of metabolic carbon dioxide under the influence of carbonic anhydrase.

The main evidence in support of the intimate involvement of carbonic anhydrase in eggshell formation is that certain sulfonamide drugs, which are powerful inhibitors of the enzyme, inhibit the calcification of shells. By feeding laying hens graded amounts of sulfanilamide, for example, it is possible to bring about a progressive thinning of the shells. Eventually, at the highest levels of treatment, completely shell-less eggs are laid.

On the average the shell of a chicken's egg weighs about five grams. Some 40 percent of the weight, or two grams, is calcium. Most of the calcium is laid down in the final 16 hours of the calcification process, which means that it is deposited at a mean rate of 125 milligrams per hour.

The total amount of calcium circulating in the blood of an average hen at any one time is about 25 milligrams. Hence an amount of calcium equal to the weight of calcium present in the circulation is removed from the blood every 12 minutes during the main period of shell calcification. Where does this calcium come from? The immediate source is the

OVARY AND OVIDUCT of the chicken are involved in the formation of the egg. The shell is formed in the uterus, which is also called the shell gland. The principal steps in the formation of a chicken's egg are shown in the illustration at the top of the next two pages.

Sistem Reproduksi ayam

1. Ovarium :
   - t.d. beratus-ratus ova
   - besar ova berbeda-beda
2. Oviduct :
   a. Mulut oviduct
   b. Funnel = Infundibulum
   c. Magnum
   d. Isthmus
   e. Uterus
   f. Vagina
   g. Cloaca/vent
3. Yang berkembang sebelah kiri

Pembentukan Kuning Telur

- Ovarium ayam yang akan bertelur menghasilkan sel telur
- Sel telur berkembang (krn ada penimbunan zat makanan)
- Hari ke 10-8 sebelum ovulasi(dibebaskan dari ovarium)penimbunan yolk terjadi perlahan
- Hari ke 7-4 : sangat cepat, besar yolk hari ke 7-6 :1/10 besar yolk masak, hari ke 4 = besar yolk masak
- Hari ke 3 : lambat
- Hari ke 1 : Berhenti → siap diovulasikan, besar yolk kurang lebih 40 mm

Ovulasi

: Proses pelepasan ovum

Yolk masak → folicel sobek di bag stigma → yolk lepas dari folikel jatuh ke→ mulut oviduct

- Infundibulum:

- panjang 7-10cm
- tempat terjadinya fertilisasi /pembuahan
- Ayam dikawinkan, spermatozoa bergerak menuju infundibulum, disini bertemu yolk.

- Sel jantan bertemu sel betina membentuk Zygot → fertilisasi
- Zygot berkembang dgn cara pembentukan sel → terbentuk blastoderm / fase perkembangan embrio saat ditelurkan.
- Telur hasil perkawinan disebut telur fertil
- Betina yang tidak dikawinkan, sel telur tetap dalam discus germinalis →telur infertil.

Magnum:

- Panjang skt 40 cm
- Yolk bergerak dari infundibulum ke magnum (15 menit)→ peristaltik
- Yolk disini 2 jam 45 menit – 3jam
- Dibentuk putih telur padat → kualitas tgt banyaknya sekresi ovomucin

Isthmus:

- Panjang skt 10 cm
- Telur dari magnum didorong masuk ke isthmus → oleh gerakan sel silia & peristaltik
- Disini skt 1-1,5 jam
- Disekresi materi pembentuk membrane shell.
- Pembentukan : 2 tahap → Inner & Outer membrane shell(melekat kecuali diujung tumpul)

Pembentukan Chalaza:

- Fungsi chalaza :
  - Zat mucin yang digunakan utk mempertahankan kedudukan yolk
  - Menjaga kestabilan suhu
- Dari magnum s/d uterus
- Posisi yolk bertahan dgn discus germinalis dipermukaan.
- Albumen & membran shell mengalami perputaran → serat mucin dari albumen mengalami pengurangan kadar air & melilit → terbentk chalaza
- Perputaran mempunyai pusat yg sama pada poros telur → yolk dapat dipertahankan ditengah albumen.

Uterus:

- Panjang skt 10 cm, berdinding tebal
- Telur disini selama 21 jam
- Menyediakan perlengkapan terakhir dari telur :

  - Putih telur & zat mineral yang masuk melalui membrane shell dgn jalan tekanan osmotik
  - Kerabang telur
  - Pigmen kerabang
  - Kutikula

Peneluran :

- Stl telur terbentuk sempurna → Vagina (disimpan bbrp saat) → Cloaca
- Di Cloaca : terjadi perputaran 360 derajad → bag runcing pada bag proctoderm dari cloaca → telur dapat mudah keluar.
- Dari ovulasi s/d peneluran : 24 – 25 jam.

Abnormalitas telur :

1. Double egg yolk / Kuning telur ganda
2. Telur tanpa kuning telur
3. Telur didalam telur
4. Blood spot/ noda darah
5. Meat spot/ noda daging
6. Telur dgn kerabang lunak
7. Kerabang Tipis
8. Kerabang keras
9. Yolk tidak berwarna