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## LAMPIRAN

# PENANGANAN KASUS HIP DYSPLASIA PADA ANJING DI KLINIK HEWAN ANUGERAH SATWA TANGERANG SELATAN

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**ABSTRACT.** *Hip dysplasia* pada anjing merupakan gangguan perkembangan yang kompleks, ditandai dengan adanya pergeseran sendi disertai *osteoarthritis* pada *coxofemoral joint* baik monolateral ataupun bilateral. Seekor anjing poodle bernama Austin datang ke klinik hewan Anugerah Satwa Tangerang Selatan. Anjing mengalami kepincangan sat berjalan, nafsu makan dan minumannya baik, sudah lengkap vaksin. Sehingga dilakukan diagnosis radiologi. Hasil pemeriksaan klinis dan pemeriksaan radiografi Austin didiagnosa mengalami *hip dysplasia*. Tindakan penanganan berupa *femoral head and neck osteotomy* menjadi pilihan prosedur yang dilakukan.

## A. PENDAHULUAN

*Canis familiaris* atau dikenal dengan anjing merupakan spesies pertama yang terdomestikasi. Anjing telah menjadi peliharaan dengan berbagai tujuan seperti berburu, menggembala, serta sebagai penjaga (Sundman, 2019). Tujuan yang beranekaragam tersebut tidak membuat anjing menjadi hewan kesayangan yang spesial, seperti hewan lainnya anjing tetap rentan terhadap berbagai penyakit yang dapat menyerang, baik itu infeksius ataupun herediter (Lanasakti *et al.*, 2021).

Penyakit herediter non-traumatik yang paling sering dijumpai salah satunya yakni *hip dysplasia* pada anjing. *Hip dysplasia* merupakan penyakit dengan perjalanan penyakit tanpa trauma yang sering ditemukan pada anjing dalam masa pertumbuhan. Faktor pewarisan serta perkembangan penyakit *hip dysplasia* hingga saat ini masih belum sepenuhnya diketahui, namun penyakit tersebut tetap dimasukkan sebagai penyakit poligenetik serta multifaktor (Almeida, 2021).

*Hip dysplasia* pada anjing merupakan gangguan perkembangan yang kompleks, ditandai dengan adanya pergeseran sendi disertai *osteoarthritis* pada *coxofemoral joint* baik monolateral ataupun bilateral. Faktor-faktor eksternal seperti nutrisi, beban aktivitas, serta proses osifikasi tulang menjadi faktor pendukung dari terjadinya perubahan pada sendi anjing dengan *hip dysplasia* (Schahner dan Lopez, 2015).

*Hip dysplasia* terjadi akibat terhambatnya perkembangan *hip joint* yang terinisiasi oleh genetik pada beberapa jenis *breed* anjing sehingga subluksasi terjadi pada sendi yang belum matang

secara sempurna. Kurangnya kesesuaian antara *caput femoris* dan *acetabulum* menyebabkan terjadinya gangguan tekanan pada sendi, mengganggu perkembangan sendi yang berujung ke pembentukan *acetabulum* dan *caput femoris* yang ireguler, serta menyebabkan beban yang berlebihan pada *cartilago* sendi sehingga sering terjadi *microfractures* ataupun *osteoarthritis* (Tilley dan Smith, 2021).

*Early hip dysplasia* atau *hip dysplasia* pada usia muda biasanya dikaitkan dengan tingkat keparahan luksasi sendi sedangkan pada *Later hip dysplasia* atau *hip dysplasia* pada usia tua dikaitkan dengan keparahan dari *osteoarthritis* (Tilley dan Smith, 2021). *Hip dysplasia* memiliki beberapa tanda klinis seperti luksasi, peradangan, respon rasa sakit saat dipalpsi ataupun bergerak, pembentukan jaringan tulang baru, erosi tulang, *lameness*, *stiffness* setelah istirahat serta ketidakmauan dalam beraktivitas (BVA dan The Kennel Club, 2019)

## B. Laporan Kasus

### 1. Anamnesis

Seekor anjing poodle bernama Austin dengan berat badan 4,96 kg dan umur 10 bulan datang ke klinik hewan Anugerah Satwa Tangerang Selatan. Menurut owner, anjingnya mengalami kepincangan saat berjalan, nafsu makan dan minumannya baik, dan riwayat vaksinasi lengkap. Pernah ke klinik lain dan melakukan x-ray kemudian di rujuk ke klinik hewan Anugerah Satwa.

### 2. Pemeriksaan Klinis

Pemeriksaan klinis pada Austin didapatkan frekuensi nafas 32x/ menit, suhu rektal 38 °C serta CRT <2 detik. Temuan termasuk kedalam interval

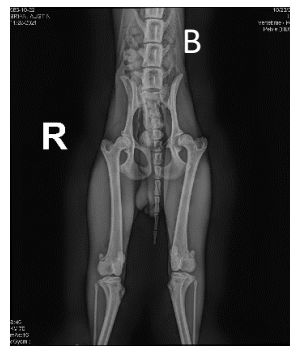
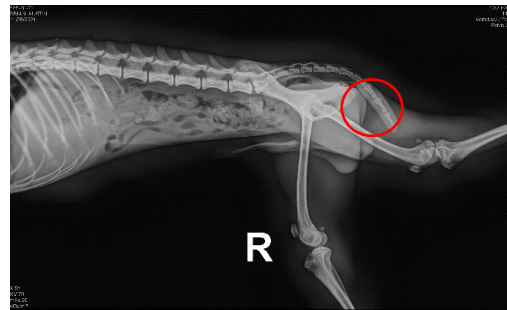
normal, sesuai dengan literatur bahwa frekuensi nafas dan suhu normal pada anjing yakni 20 – 34x/menit, bersuhu 37,9 - 39,9 °C (Reece *et al.*, 2015). CRT normal pada anjing berkisar 1 – 2 detik yang mengindikasikan bahwa perfusi serta kecepatan kapiler terisi dengan darah bersifat normal (MSD Manual, 2023). Dilakukan uji Ortolani dengan hasil positif pada *extremitas caudal sinister*. Uji Ortolani positif ditandai dengan adanya suara atau hasil rabaan ‘clunk’ pada saat dilakukan gerakan memasukkan kembali *caput femoris* ke *acetabulum* (Ginja *et al.*, 2015). Palpasi pada area *extremitas* tidak mengindikasikan adanya rasa sakit. Cara berjalan Austin menunjukkan kepincangan, dengan keengganan untuk berdiri dan bergerak lama. Menurut Summer (2014), anjing dengan *hip dysplasia* biasanya akan memperlihatkan rekasi rasa sakit saat di palpasi pada area *hip joint* namun hal ini dapat tidak tampak, begitupula dengan kepincangan, *stiffness*, ataupun kenggan untuk melakukan aktivitas.



Gambar 1. Uji Ortolani pada Austin.

### C. Hasil dan Diagnosis

Pemeriksaan lanjutan dilakukan dengan melakukan pembacaan pada hasil radiografi yang disertakan, merupakan gambar yang diambil dari klinik asal rujukan. Gambaran radiografi Austin tanpakan *ventrodorsal* memperlihatkan adanya peningkatan jarak antara *acetabulum* dan *caput femoris*. Pendiagnosaan dilakukan dengan menyimpulkan anamnesa, sinyalemen, hasil pemeriksaan klinis, dan hasil pemeriksaan lanjutan berupa radiografi, sehingga berdasarkan hal tersebut Austin didiagnosa mengalami *hip dysplasia*.

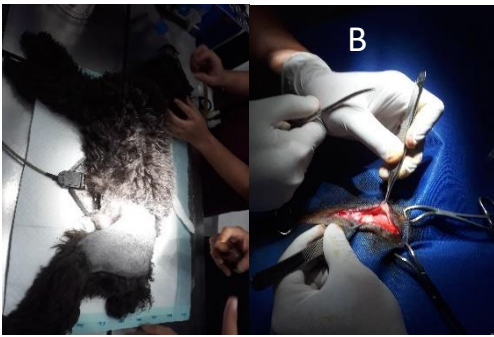


Gambar 2. Hasil radiografi preoperasi Austin (R – Sisi *Lateral sinister*), (A) tampakan *lateral* memperlihatkan ketidaksejajaran antara *hip joint* kiri dan kanan (lingkaran merah) dan, (B) tampakan *ventrodorsal* memperlihatkan adanya perluasan jarak antara *acetabulum* dan *caput femoris* pada *hip joint sinistra* (lingkaran hijau).

### D. Metode Operasi

Tindakan penanganan dilakukan setelah melakukan konsultasi dengan owner terkait perencanaan tindakan, biaya finansial, lama penyembuhan dan berbagai faktor lainnya, sehingga tindakan penanganan berupa *femoral head and neck osteotomy* (FHNO) menjadi pilihan prosedur yang dilakukan. Tindakan operasi mengikuti langkah langkah prosedur FHNO pada Fossum *et al.* (2019). Operasi dimulai dengan penginduksian sedasi berupa *Medetomidine* sebesar 0,1 ml IM (mililiter via intramuskular) kemudian dilanjutkan proses pencukuran pada area situs bedah, 15 menit kemudian dilanjut dengan pemberian *Ketamine* sebesar 0,1 ml IM serta *Fentanyl* sebesar 0,4 ml IV. Anestesi kemudian dipertakankan dengan *sevoflurane* dan oksigen. Pasien kemudian di letakkan pada meja operasi dengan posisi *left lateral recumbency* dengan *extremitas caudalis sinister* berada pada bagian atas dan *hip joint* terlihat jelas.

Insisi kemudian dilakukan pada area *craniolateral* satu sentimeter dari *hip joint*.



Gambar 3. (A) Pasien setelah diinduksi anestesi umum dan (B) Insisi kulit area *craniolateral* dari *hip joint*.

Dilakukan penguakan pada *M. biceps femoris* ke arah *caudal* serta *m. tensor fasciae lata* ke arah *cranial*. Insisi *m. vastus lateralis* disertai penggunaan *stay suture* pada otot tersebut. Insisi selanjutnya dilanjutkan pada *capsula joint* serta pemotongan pada *round ligament* dengan melakukan traksi *trochanter major* ke lateral agar terjadi subluksasi *caput femoris* agar ligamentum terlihat, kemudian masukkan gunting bengkok ke dalam sendi untuk memotong ligamentum.

Pemotongan *caput et collum femoris* dilakukan dengan memutar kaki untuk memperlihatkan area yang akan di potong, yakni pada perhubungan antara *collum femoris* dan *femoral metaphysis*. Pastikan permukaan *collum femoris* yang tinggal setelah pemotongan tidak memiliki bentuk yang irregular, apabila ditemukan maka permukaan perlu diperhalus. Situs bedah kemudian dilakukan *wound irrigation* dan dilanjutkan dengan penjahitan pada *capsule joint*, *m. vastus lateralis*, *m. gluteus medius*, *m. tensor fasciae lata*, jaringan subkutan, serta kulit. Pembersihan area sekitar situs bedah kembali dilakukan untuk menghindari infeksi.



Gambar 4. (A) Pemotongan *caput et collum femoris* dan (B) Penjahitan dan pembersihan area sekitar situs bedah.

Pengobatan yang diberikan sebagai *postoperative treatment* pada Austin yakni Amoxicillin injeksi & tablet, Carprofen tablet dan Gentamisin salep. Pemasangan *Elizabethan Collar* juga dianjurkan pada Austin. Penggunaan amoxicillin ditujukan untuk mencegah infeksi pada situs bedah, serta dikarenakan sifatnya yang berspektrum luas. Carprofen merupakan NSAID (*Non Steroidal Antiinflammatory Drugs*) yang diberikan dengan tujuan untuk mengurangi rasa sakit posoperasi yang dirasakan oleh pasien setelah operasi serta sebagai agen antiinflamasi. Gentamisin salep bersifat efektif dalam mengontrol bakteri gram negatif. Pemberian antimikroba dalam bentuk topikal bertujuan untuk mengeliminasi ataupun mengurangi jumlah mikroorganisme yang berada pada area luka dan bersifat merusak jaringan luka. *Elizabethan collar* sendiri bertujuan untuk mencegah terjadinya kerusakan pada luka akibat perilaku hewan yang mengganggu luka (Fossum *et al.* 2019).

## E. KESIMPULAN

*Hip dysplasia* merupakan gangguan perkembangan yang kompleks, ditandai dengan adanya pergeseran sendi disertai *osteoarthritis* pada *coxofemoral joint* baik monolateral ataupun bilateral. Penanganan yang diberikan dapat berupa pemberian antinflammasi untuk menangani peradangan pada sendi serta rasa sakit sebagai manifestasi radang namun sifatnya tidak dapat mengembalikan kondisi semula, sehingga tindakan berupa operasi, salah satunya *Femoral head and Neck Osteotomy* dapat menjadi penanganan terhadap *hip dysplasia* pada anjing.

## F. SARAN

Pembelajaran lebih jauh baik secara literatur ataupun praktik masih perlu dilakukan, terutama bentuk-bentuk penanganan lain yang dapat dilakukan terhadap kasus *hip dysplasia* pada anjing.

## INFORMASI PENULIS

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### Kontribusi Penulis

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# HIP DYSPLASIA CASE HANDLING IN DOGS

## IN THE TANGERANG SELATAN ANIMAL CLINIC

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**ABSTRACT** . *Hip dysplasia* in dogs is a complex developmental disorder, characterized by joint displacements accompanied by *osteoarthritis* on *coxofemoral joints* either monolateral or bilateral. A poodle named Austin came to the South Tangerang Animal Award animal clinic . The dog has a limp when walking, has a good appetite and drinks, has a complete vaccine. So a radiological diagnosis is made . Results of clinical examination and examination radiography Austin diagnosed with *hip dysplasia* . The handling action is in the form of *femoral heads and neck osteectomy* be the procedure of choice.

### A. INTRODUCTION

*Canis familiaris* or known with dogs is species the first to be domesticated . Dog has become pet with various objective like hunting , herding , as well as guard ( Sundman , 2019). Which goal various the No make a dog animal special pet , like \_ animal other dogs remain prone to to various possible disease \_ attack , fine infectious or hereditary ( Lanasakti *et al.*, 2021).

Disease most common non- traumatic hereditary found one of them ie *hip dysplasia* in dogs. *Hip dysplasia* is disease with journey disease without frequent trauma found in dogs in their infancy . Factor inheritance as well as development disease *hip dysplasia* to moment This Still Not yet fully known , however disease the still entered as disease polygenetic as well as multifactor (Almeida, 2021).

*Hip dysplasia* in dogs is a complex developmental disorder, characterized by joint displacements accompanied by *osteoarthritis* on *coxofemoral* good *joints* monolateral or bilateral. External factors such as nutrition, activity loads, and bone ossification processes are the supporting factors for changes in the joints of dogs with *hips dysplasia* ( Schahner and Lopez, 2015 ).

*Hip dysplasia* occurs due to inhibition of *hip development joints* initiated by genetics in several types of *breeds* dogs so that subluxations occur in joints that are not fully mature. Lack of

compatibility between *heads femoral* and *acetabulum* causing pressure disturbances in the joints, interfering with joint development leading to the formation of *the acetabulum* and *head femoral* which are irregular , and cause excessive burden on *the cartilage* joints, causing frequent *microfractures* or *osteoarthritis* ( Tilley and Smith , 2021) .

*Early hip dysplasia* or *hips dysplasia* at a young age is usually associated with severity joint luxation whereas in *Later hip dysplasia* or *hips dysplasia* in old age is associated with the severity of *osteoarthritis* ( Tilley and Smith, 2021). *Hip dysplasia* has several clinical signs such as luxation , inflammation, pain response when palpated or moved, formation of new bone tissue, bone erosion, *lameness* , *stiffness* after rest and unwillingness to act (BVA and The Kennel Clubs , 2019)

### B. Report Case

#### 1. Anamnesis

A poodle named Austin with weight 4.96 kg and age 10 months come to clinic animal grace Animals South Tangerang . According to the owner , the dog experience lameness when walking , lust \_ \_ eating and drinking well, and history vaccination complete . Once to another clinic and did an x-ray then referred to clinic animal grace Animal .

#### 2. Clinical Examination



in Austin found respiratory rate 32x/minute, rectal temperature 38.0°C and CRT <2 seconds. The findings are included in the normal interval, in accordance with the literature that the normal respiratory frequency and temperature in dogs are 20-34x/minute, with a temperature of 37.9 - 39.9 °C (Reece *et al.* , 2015). Normal CRT in dogs ranges from 1 – 2 seconds which indicates that perfusion and the rate at which the capillaries are filled with blood are normal (MSD Manual, 2023). Ortolani test was performed with positive results on *the extremities caudal cynical* . A positive Ortolani test is indicated by a ' *clunk* ' sound or palpation when *the head is pushed back in femoral to the acetabulum* (Ginja *et al.* , 2015). Palpate the *extremities* does not indicate pain. Austin's gait exhibits a limp, with a reluctance to stand and move for long. According to Summer (2014), a dog with a *hip dysplasia* usually will show a painful reaction when palpated in the *hip area joints* but this can be invisible, as well as lameness, *stiffness* , or reluctance to do activities.



Figure 1. Ortolani test on Austin .

### 3. Results and Diagnosis

Follow-up examinations are carried out by taking readings on the included radiographic results, which are images taken from the referral clinic. Austin's radiographic appearance is absent *ventdorsal* showed an increase in the distance between *the acetabulum* and *head femoral* . Diagnosis is made by concluding anamnesis , indications, the results of a clinical examination, and the results of a follow-up examination in the form of radiography, so that based on this, Austin was diagnosed with *hip dysplasia* .

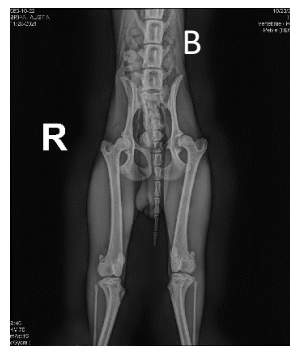
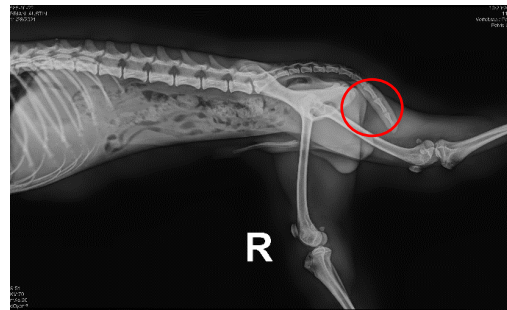


Figure 2. Austin preoperative radiograph results (R – *Left lateral side* ), (A) view *laterally* shows misalignment between *the hips joints* left and right (red circle) and, (B) view *ventrodorsal* showing an enlarged space between *the acetabulum* and *head femoral* on *hio joints left* (green circle) .

### 4. Method Operation

Handling actions are carried out after consulting with the owner regarding action planning, financial costs, healing time and various other factors, so that treatment actions are in the form of *femoral heads and neck osteectomy* (FHNO) be the procedure of choice. The operation follows the steps of the FHNO procedure on Fossum *et al.* (2019). The operation begins with induction sedation with *Medetomidine* 0.1 ml IM (milliliter via intramuscular ) then continued with the shaving process in the surgical site area, 15 minutes later followed by administration of *Ketamine* 0.1 ml IM and *Fentanyl* of 0.4 ml IV . The anesthetic is then enhanced with *sevoflurane* and oxygen . The patient was then placed on the operating table in the *left lateral recumbency position* with *extremities caudalis cynical* is at the top and *hip joints* see clearly. The incision is then made in the *craniolateral area* one centimeter from *the hip joints* .

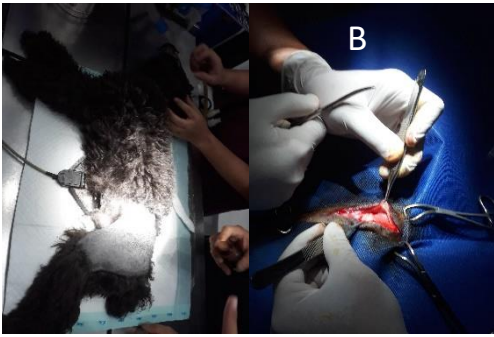


Figure 3. (A) Patient after general anesthesia induction and (B) Skin incision in *craniolateral* area from *hip joints* .

Examination was carried out on *M. biceps femoral* towards *the caudal* as well as *m. tensors fasciae lata* towards *cranial* . Incision *m. vastus lateral* accompanied by the use of *stay sutures* on that muscle . The next incision is continued on *the capsule joints* as well as cutting on *the round ligaments* using *trochanteric traction major* laterally to allow for *subluxation caput femoral* so the ligament is visible, then insert bent scissors into the joint to cut the ligament .

*Head cutting et column femoral* done by turning the leg to reveal the area to be cut, namely at the junction between *the collums femoral* and *femorals metaphysis* . Make sure the *collum surface femoris* that remains after cutting does not have an irregular shape , if found, the surface needs to be refined. The surgical site is then *wound irrigation* and proceed with suturing the *capsule joint* , *m. vastus lateralis* , *m. gluteus medius* , *m. tensors fasciae lata*, subcutaneous tissue , and skin. Cleaning the area around the surgical site was again carried out to avoid infection .



Figure 4 (A) Cutting *the head et column femoral* and (B) Suturing and cleaning the area around the surgical site .

Treatment given as *postoperative treatments* in Austin namely Amoxicillin injection & tablets, Carprofen tablets and Gentamicin ointment. *Elizabethan* installation *collars* also recommended *pasa Austin*. usage amoxicillin is intended to prevent infection at the surgical site, as well as due to broad spectrum nature. Carprofen is an NSAID ( *non- steroidal anti-inflammatory drug* ) . *Drugs* ) which are given with the aim of reducing postoperative pain felt by patients after surgery as well as anti-inflammatory agents . Gentamicin ointment is effective in controlling gram-negative bacteria. Giving antimicrobials in topical form aims to eliminate or reduce the number of microorganisms that are in the wound area and are destructive to wound tissue. *Elizabethan* The collar itself aims to prevent damage to the wound due to animal behavior that interferes with the wound ( Fossum *et al.* 2019).

## 5. CONCLUSION

*Hip Dysplasia* is a complex developmental disorder characterized by joint displacements *osteoarthritis of the coxofemoral joints* either monolateral or bilateral. The treatment given can be in the form of giving anti-inflammatory drugs to treat inflammation in the joints and pain as a manifestation of inflammation but its nature cannot restore its original condition, so the action is in the form of surgery, one of which is *Femoral . heads and Neck Osteectomy* can be a treatment for the hip dysplasia in dogs.

## 6. SUGGESTION

Learning more far better \_ literature or practice Still need done , especially forms \_\_ other possible treatment done to case *hip dysplasia* in dogs .

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## Author Contributions

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